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Editorial

THE first issue of *Accounting and Business Research* has been so well received as to give great encouragement to its publishers. This second issue appears rather more than three months after the first, the flow of new material and the clearance of proofs having been retarded by the postal strike; but it is hoped that readers will take some comfort from the fact that this issue contains more material than the first (104 pages as against 80) and that articles for subsequent issues are arriving in very encouraging numbers.

The aim implicit in the title of the journal and announced in the first issue, of publishing material from the business sphere and about current business problems, must still be emphasised. The article in this issue by John Chown on *The Reform of Corporation Tax* is indeed by a business man, who is not an accountant. Mr Chown is, of course, well known in the field of taxation. A high proportion of the other articles here published have also been written with a view to the solution of practical business problems, or have arisen out of first hand study of those problems. Nevertheless the scope for articles arising within industry and commerce is still wide. Readers who themselves occupy positions in industry are invited to submit material which has been developed within their firms and which they are willing to make public. This applies not only to accountancy questions, but to any problems of business economics.

In later issues of *Accounting and Business Research* some space will be devoted to book reviews. These will be confined as far as possible to works of major importance.

The circulation of *Accounting and Business Research* is healthy and expanding but the greater the circulation becomes, the greater the opportunities for further improvement. A subscription form for new readers is included with this issue.

The Behavioural Critique of Accounting

T. W. McRae

Introduction

The human side of business organisation is currently passing through a kind of bloodless revolution. The traditional authoritarian style of leadership is being gradually replaced by a more democratic style based on participation and decentralised control.¹

The decline in authority can be attributed to some recent, probably irreversible changes in the basic structure of western society. For example the growth of education has conditioned the average employee to be rather more critical of 'accepted practice' than his father was. The maintenance of long-term full employment makes it relatively easy for a dissatisfied or frustrated employee to change his job, while the democratic concept has been so widely diffused throughout society by television, radio, newspapers, etc., that we have come to take it for granted. The desire to 'reason why', to participate in a democratic process of decision taking, has permeated to every level of society and into every institution.

As Martin Shubik (1966) writes:²

'What are the economic and political values that a democratic society wishes to foster and preserve? What conditions must be imposed on institutions designed to obtain and maintain these values? What assumptions have been made implicitly or explicitly in current doctrines concerning the role and nature of the individual?'

Numbers, communication, the growing importance of joint property and services, as well as the speed of change in knowledge and information, force a reconsideration of our concepts. In terms of the democratic state and its citizens, we must re-examine power, equality, freedom of choice, ownership, centralisation, "fair shares for all", "to each according to his needs, from each according to his ability" and many

other appealing yet ill-defined words and slogans.³ The business organisation, like every other institution, must learn to adapt to this broad secular trend.

However most business organisations employ systems of control which were developed in the highly authoritarian culture of the nineteenth century. This type of control system tends to treat employees as if they are identical interchangeable units that can be programmed to meet some preconceived budget.³ The difficulty of operating this type of control system under modern conditions will be discussed later. For the moment let us note that mechanistic control systems were designed to suit a pattern of values and attitudes very different to those prevailing in the second half of the twentieth century.

Behavioural scientists* have investigated the complex inter-relationships of the 'work' environment since the early years of the present century. Elton Mayo (1933) carried out his celebrated 'Western Electric' studies on work motivation during the period 1928-30. However research into the operating characteristics of real-life business control systems was not begun until much later. The first major publication in the field would seem to be that of Argyris (1953).

These studies† have identified various costs associated with using a nineteenth-century control implement in a twentieth-century environment. They emphasise the benefits of participation, feedback, and self-evaluation and the costs associated with punitive control and low information diffusion.

Since most of the control systems currently employed in business are designed and operated by accountants, it is hardly surprising to find that many of these research studies are rather critical of current accounting procedures. Yet we could find little

¹ See for example Bennis (1966) Chapter on principles of democratic organisation.

² M. Shubik 'Information, Rationality, and Free Choice in a future democratic society.' Bell (1968) p. 139.

³ See Bennis (1966) Chapter 1.

* By behavioural scientists we mean psychologists, social psychologists and sociologists who specialise in the study of human behaviour.

† See references at the end of the article.

evidence‡ that accountants are concerned about, or perhaps even aware of, this behavioural attack on their methods.

In the following pages we will present the case for the prosecution. That is we will attempt to bring together the various criticisms which behavioural scientists have levelled at current systems of control.

The value of human resources

When a business is sold it is not uncommon for the sale value of the business to exceed the break up value of the assets. The difference, called goodwill, is described as an 'intangible asset'.

The value of goodwill is determined by several factors, one of which is the replacement value of the human resources employed by the organisation.

Behavioural scientists claim that the state of the human resources employed by an organisation is as important to the long-term success of the organisation as the state of its inventory, fixed assets or finances. Yet conventional accounting systems fail to identify and segregate the value of human resources. According to Likert (1961) 'These variables, seriously neglected in present measurements, reflect the current condition of the internal state of the organisation: its loyalty, skills, motivations, and capacity for effective interaction, communication, and decision making.'⁴

Likert calls these variables 'intervening variables' and contrasts them with *causal* variables which determine what a business is doing with its resources and 'end result' variables, such as output and profit, which measure the *apparent* success or failure of a business system during a given time period. Likert claims that a proper system of evaluation ought to measure 'intervening variables' as well as 'end result' variables. We shall return to this point later.

F. H. Allport (1933) introduced the concept of 'partial inclusion' into social psychology. Every individual allocates his abilities and energies between several activities, one of which is the employment by which he earns his daily bread.

Behavioural scientists point out that if an organisation buys the attendance of an individual for a given number of hours each day, it would seem logical to motivate that individual to give as much of his ability and energy as he is able during this period. However, they provide research evidence to show that the control systems currently employed by most business organisations fail to motivate employees to this end, and in many cases actually alienate them from the organisation.⁵

‡ In examination questions of the professional bodies or in the professional journals.

⁴ Likert (1961) p. 61.

⁵ Ibid., Chapters 3 and 5.

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Behavioural scientists differentiate between 'cognitive' and 'interpersonal' competence.⁶ Cognitive competence can be crudely defined as the ability to manage things and interpersonal competence as the ability to understand and handle people. Some recent research results seem to suggest that those responsible for the design of business control systems are somewhat deficient in the latter skill.⁷ Argyris suggests that accountants should be trained to 'perceive the human implications of budget systems'.⁸

In summary, Behavioural scientists claim that human resources are frequently the most important asset possessed by an organisation. The psychological state of the employee is an important determinant of the long-term success or failure of the organisation. An efficient system of accounting and control should measure the value of this asset and motivate employees to give of their best to the organisation which employs them.

Let us now examine in rather more detail some of the criticisms levelled at contemporary business control procedures by behavioural scientists.

i. *The objective of accounting control systems is to modify human behaviour. Yet the designers of accounting control systems know little, if anything, about recent research findings on human behaviour.*

Accounting control systems set levels of aspiration, reinforce attitudes, place individuals in positions of success and failure, provide a vehicle for participation, etc., etc. In summary, accounting systems affect human behaviour.

The laws of human behaviour are not as well determined and tested as the laws of physics or the laws of astronomy, there is more variety in human behaviour than in the behaviour of the planets, yet a good deal is now known about the general pattern of human behaviour.⁹

Behavioural scientists complain that the designers of business control systems do not appear to be familiar with, or even perhaps aware of, recent research findings on human behaviour. In consequence, accounting control systems operate less efficiently than they could if account were taken of these research findings.

An extensive literature is extant on the psychology of control. The following examples illustrate the relevance of some of this literature to accounting control systems.

Budgets are designed to make an organisation more

⁶ See Argyris (1964) p. 24.

⁷ See Argyris (1953) for some interesting comments on the attitudes of production specialists to the budget controller.

⁸ See Berelson and Steiner (1964) for a useful summary of some of the more important recent findings about human behaviour.

efficient. That is to say, to increase output per unit of input.

Will a company operate more efficiently if budgets are imposed, or if the individuals to be controlled participate in setting the budget levels? A United States study by Sord and Welsch⁹ found that 83 per cent (29) of the companies approached used some kind of participation procedure.

L. Coch and S. R. P. French¹⁰ (1948) compared the result of non-participatory versus participatory budgets and found convincing evidence to show the superiority of the latter.

Since performance is known to be related to the level of aspiration it is important to induce high aspirations in employees. Various studies suggest that the level of aspiration is a controllable variable, i.e. managements have it in their power to alter the level of aspiration of employees.¹¹

Turning from budgeting to information flow, we find another set of relevant research findings.

Take for example the flow of control information through an organisation. A control system is set up which purports to provide an upward flow of information on the relative performance of a department. But many departmental managers being human, will tend to value their own future prospects over that of the organisation which they are serving. Departments suspected of inefficiency 'will feed up information that will decrease the probability of further stress'.¹² An ambitious manager will tend to feed up the kind of information he thinks his superior likes:

'It appears that ambitious subordinates are more cautious in their behaviour and upward communications because they have an eye on the consequences. "Playing it safe" is a way to keep the road to advancement open.'¹³

Few individuals enjoy being *publicly* placed in a position of failure - see criticism (5) ahead.¹⁴ Yet many business control systems operate in this way. Would private consultation not be more effective?

Again accountants concentrate on designing information systems which *collect* and *transmit* information accurately. They pay much less attention to the accuracy of *reception* by the target audience:

'Frequently the term "communication" is used as though all material which is transmitted is understood and accepted. For example, information placed before

employees is assumed to have been communicated to them, that is, understood and accepted by them. This may or may not be the case.'¹⁵

Many alternative methods are available for presenting information, yet most accountants still tend to use a matrix of numbers for transmitting accounting results. This suits the cognitive apparatus of the sender but possibly not the receiver. Messages ought to be coded in the language of the receiver.

Professor S. W. Becker, a psychologist, considers that accountants should concentrate their behavioural research on the 'coding and receiving processes' of the individuals who use accounting information.¹⁶ Otherwise accounting reports may fail to communicate the information intended by the accountant.

W. J. Bruns (1968) goes so far as to question whether 'the majority of users feel accounting is a valued and good source of information'.¹⁷ Little research seems to have been done in this area.

Many more examples could be provided of the harm that may result from ignoring the real pattern of human behaviour. However, the examples noted above are sufficient to illustrate the basic point that an efficient control system ought to be prefaced by a careful study of the behavioural profile of the individuals to be controlled. The controller should make some attempt to acquaint himself with the more important findings of recent research in the behavioural sciences.

2. Accounting control systems are based on an obsolete model of human behaviour

A more subtle criticism of traditional accounting control procedures is not that they ignore human behaviour, but that they are based on an obsolete model of human behaviour.

Table I¹⁸ provides a list of some of the assumptions about human behaviour and organisational goals which are built into the design of traditional accounting control systems.

Table II provides a contrasting list of assumptions based on recent findings in the behavioural sciences.

The fault is not so much that the accountants' behavioural assumptions are wrong as that accountants believe them to be correct under all circumstances.

Behavioural scientists also suggest that accountants are not aware of the fact that in designing a control system one must inevitably make certain assumptions about the behaviour of the individual controlled. For example, the budget and standard costing systems which are described at such length in current account-

⁹ Sord and Welsch (1958).

¹⁰ See Becker and Green (1962) p. 395 for a summary of the findings.

¹¹ See Becker and Green (1962), pp. 395-401 for a summary of some of their findings. Also see Stedry (1962).

¹² Argyris (1964), p. 133.

¹³ Ibid., p. 105.

¹⁴ The relative effects on aspiration levels of *public* versus *private* communication of failure would seem to be untested.

¹⁵ Likert (1961), p. 44.

¹⁶ See Comments following Cook (1967), p. 227.

¹⁷ Bruns (1968), p. 480.

¹⁸ Taken from Caplan (1968), p. 497.

ing textbooks have certain assumptions about human behaviour built into them. But nowhere within these weighty covers does one find the behavioural assumptions spelled out. In criticism (5) ahead we will examine systems of control which are based on alternative assumptions about human behaviour, but these are unlikely to be adopted, or even considered, unless current implicit assumptions are made explicit and shown not to be valid under all circumstances.

3. Conventional accounting systems fail to allocate expenditure on the training and maintenance of human assets to the requisite cost centres and/or time period.

This criticism is in two parts. First that human resource expenditure is always treated as an immediate charge against income, although much of the expenditure, i.e. management training, is clearly a long-term investment. 'The timing of the expected

benefits'¹⁹ from the expenditure is ignored.

Second that 'human assets are implicitly assumed to be a free good — one without cost. But since human as well as physical assets have an opportunity cost associated with their use, this cost should be quantified and considered in evaluating alternatives.'²⁰

It is suggested that the asset, i.e. long-term investment, component of expenditure on human resources should be separated from the expense component, and carried forward into the period when the resulting benefit accrues. It is also suggested that a human asset ledger of 'personalised accounts' should be maintained. The cost of 'recruiting, hiring, training, developing and familiarising' individuals will be identified and debited to the individual's personalised account, and rules will be formulated for depreciating and 'writing

¹⁹ Brummet *et al.* (1968), p. 217.

²⁰ *Ibid.*, p. 220.

TABLE I

BEHAVIOURAL ASSUMPTIONS OF 'TRADITIONAL' MANAGEMENT ACCOUNTING MODEL OF THE FIRM

Assumptions with Respect to Organisation Goals

- A. The principal objective of business activity is profit maximisation (economic theory).
- B. This principal objective can be segmented into sub-goals to be distributed throughout the organisation (principles of management).
- C. Goals are additive — what is good for the parts of the business is also good for the whole (principles of management).

Assumptions with Respect to the Behaviour of Participants

- A. Organisation participants are motivated primarily by economic forces (economic theory).
- B. Work is essentially an unpleasant task which people will avoid whenever possible (economic theory).
- C. Human beings are ordinarily inefficient and wasteful (scientific management).

Assumptions with Respect to the Behaviour of Management

- A. The role of the business manager is to maximise the profits of the firm (economic theory).
- B. In order to perform this role, management must control the tendencies of employees to be lazy, wasteful, and inefficient (scientific management).
- C. The essence of management control is authority. The ultimate authority of management stems from its ability to affect the economic reward structure (scientific management).
- D. There must be a balance between the authority a person has and his responsibility for performance (principles of management).

Assumptions with Respect to the Role of Management Accounting

- A. The primary function of management accounting is to aid management in the process of profit maximisation (scientific management).
- B. The accounting system is a 'goal-allocation' device which permits management to select its operating objectives and to divide and distribute them throughout the firm, i.e., assign responsibilities for performance. This is commonly referred to as 'planning' (principles of management).
- C. The accounting system is a control device which permits management to identify and correct undesirable performance (scientific management).
- D. There is sufficient certainty, rationality, and knowledge within the system to permit an accurate comparison of responsibility for performance and the ultimate benefits and costs of that performance (principles of management).
- E. The accounting system is 'neutral' in its evaluations — personal bias is eliminated by the objectivity of the system (principles of management).

TABLE II

SOME BEHAVIOURAL ASSUMPTIONS FROM MODERN ORGANISATION THEORY

Assumptions with Respect to Organisation Goals

- A. Organisations are coalitions of individual participants. Strictly speaking, the organisation itself, which is 'mindless', cannot have goals – only the individuals can have goals.
- B. Those objectives which are usually viewed as organisational goals are, in fact, the objectives of the dominant members of the coalition, subject to whatever constraints are imposed by the other participants and by the external environment of the organisation.
- C. Organisation objectives tend to change in response to: (1) changes in the goals of the dominant participants; (2) changes in the relationships within the coalition; and (3) changes in the external environment of the organisation.
- D. In the modern complex business enterprise, there is no single universal organisation goal such as profit maximisation. To the extent that any truly over-all objective might be identified, that objective is probably organisation survival.
- E. Facing a highly complex and uncertain world and equipped with only limited rationality, members of an organisation tend to focus on 'local' (i.e., individual and departmental) goals. These local goals are often in conflict with each other. In addition, there appears to be no valid basis for the assumption that they are homogeneous and thus additive – what is good for the parts of the organisation is not necessarily good for the whole.

Assumptions with Respect to the Behaviour of Participants

- A. Human behaviour within an organisation is essentially an adaptive, problem-solving, decision-making process.
- B. Organisation participants are motivated by a wide variety of psychological, social, and economic needs and drives. The relative strength of these diverse needs differs between individuals and within the same individual over time.
- C. The decision of an individual to join an organisation and the separate decision to contribute his productive efforts once a member, are based on the individual's perception of the extent to which such action will further the achievement of his personal goals.
- D. The efficiency and effectiveness of human behaviour and decision making within organisations is constrained by: (1) the inability to concentrate on more than a few things at a time; (2) limited awareness of the environment; (3) limited knowledge of alternative courses of action and the consequences of such alternatives; (4) limited reasoning ability; and (5) incomplete and inconsistent preference systems. As a result of these limits on human rationality, individual and organisational behaviour is usually directed at attempts to find satisfactory – rather than optimal – solutions.

Assumptions with Respect to the Behaviour of Management

- A. The primary role of the business manager is to maintain a favourable balance between (1) the contributions required from the participants and (2) the inducement (i.e., perceived need satisfactions) which must be offered to secure these contributions.
- B. The management role is essentially a decision-making process subject to the limitations on human rationality and cognitive ability. The manager must make decisions himself and must effectively influence the decision premises of others so that their decisions will be favourable for the organisation.
- C. The essence of management control is the willingness of other participants to *accept* the authority of management. This willingness appears to be a non-stable function of the inducement-contribution balance.
- D. Responsibility is assigned from 'above' and authority is accepted from 'below'. It is, therefore, meaningless to speak of the balance between responsibility and authority as if both of these were 'given' to the manager.

Assumptions with Respect to the Role of Accounting

- A. The management accounting process is an information system whose major purposes are: (1) to provide the various levels of management with data which will facilitate the decision-making functions of planning and control; and (2) to serve as a communications medium within the organisation.
- B. The effective use of budgets and other accounting control techniques requires an understanding of the interaction between these techniques and the motivations and aspiration levels of the individuals to be controlled.
- C. The objectivity of the management accounting process is largely a myth. Accountants have wide areas of discretion in the selection, processing, and reporting of data.
- D. In performing their function within an organisation, accountants can be expected to be influenced by their own personal and departmental goals in the same way as other participants are influenced.

off' these assets.

After a time a firm employing such a system will be able to estimate the acquisition cost and investment in its employees with a fair degree of precision.

Brummet *et al.* (1968) describe the framework of a human asset accounting system set up within the R. G. Barry Corporation in the United States. The system monitors ninety managers and has operated since 1 January 1968.²¹ Hekimian and Jones (1967) suggest a competitive bidding approach to evaluating employees who are needed by different departments in the same organisation: If an employee working in one department (Investment Centre) is wanted by another department, the departmental manager can 'bid' for the employee. If the manager's bid exceeds that of the retention bid of the manager of the employee's existing department, the employee is transferred. The bid price is now included in the 'asset base' of the employee's new department.

The scheme provides a method of capitalising the value of scarce human resources.

The authors claim that the scheme would

- (a) encourage managers to make the maximum use of an employee's ability,
- (b) overcome the tendency to limit personnel expenditure to those activities with very short pay-back periods.

Rensis Likert, however, considers that the type of valuation approach described above, although useful, is rather naive. 'It underestimates the true investment in the human side of the enterprise, since it does not reflect the additional investment made during the period when the member of the firm was establishing effective co-operative working relationships . . . these . . . relationships take an appreciable period of time (to establish) and involve substantial cost.'²²

The state of these working relationships is one of the 'intervening variables' discussed in the next section.

4. *Conventional accounting measures of performance ignore the value of the current psychological state of the human organisation. This results in an incorrect allocation of profit to departments and/or between time periods.*

The cement which binds social systems together is psychological rather than physical. 'Social systems are anchored in the attitudes, perceptions, beliefs, motivations, habits and expectations of human beings.'²³ The bonds which bind a social system together are easily damaged and take a long time to repair.

Likert (1961), as was noted above, calls the variables

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which reflect the psychological state of the human organisation 'intervening variables'.

The effectiveness of an organisation depends upon the condition of these intervening variables. For example hostility between management and workers can lower the morale of both parties, which can reduce productivity and so, in the long term, profits. A company, department, or section which enjoys good human relations can absorb an amount of external stress which could cause go-slows and strikes in a company suffering from less harmonious relations.

Behavioural scientists complain that conventional accounting systems fail to detect and measure an appreciation or depreciation in the condition of the human organisation *at the time these occur*.

High morale and good human relations are just as much of an asset to a company as inventory, plant and equipment. But the former asset does not appear on the balance sheet of any company, nor does a rise or fall in the value of this asset get reflected in the company profit and loss account. Likert (1961) writes:

'Companies are very careful not to let managers of decentralised plants show spurious profit and earnings by juggling inventory or by failing to maintain plant and equipment . . . earnings achieved by liquidating the assets represented in the human organisation are just as spurious as those achieved by liquidating the investment in plant.'²⁴

A ruthless manager can take over a department and by harsh methods force up 'profit' in the short term. But he has achieved this increment of profit by damaging human relations in the department. The human assets have fallen in value. But this depreciation in the human assets is not debited to the departmental profit and loss account. Conventional accounting procedures will designate the manager as 'successful' and, with luck, he will be promoted before the damage he has wrought to human relations is reflected in lower quality output, go-slows and strikes.

Argyris writes that:

'Accounting procedures assume that the crucial variables . . . are non-human ones.' 'We . . . need an operational definition of costs that is much broader than the one presently in use.'²⁵

Conventional accounting problems measure 'end-result' variables like profit and output and ignore the condition of the intervening variables. A proper management accounting system ought 'to measure goldbricking, rate setting, apathy and non-involvement, lack of openness, conformity, mutual distrust, extreme commitment and interdepartmental rivalries'.²⁶

However, the basic complaint is clear enough.

²¹ Brummet *et al.* (1968).

²² Likert (1967), p. 147.

²³ Katz and Kahn (1966), p. 33.

²⁴ Likert (1961), p. 72.

²⁵ Argyris (1964), p. 125.

Short-term profits can be bought at the cost of liquidating human assets and the latter will not be charged to the period in which the damage was done.

Even more serious would be a situation where the damage to human relations in one department ignites a strike which shuts down the whole factory. Again a conventional accounting system would not debit the guilty department with the cost of the strike.

5. The conventional systems of control used by accountants tend to be punitive rather than supportive. This discourages employees by placing them in a position of 'psychological failure'.

This criticism begins by making certain assumptions about the psychological characteristics of employees. 'There is an increasing number of psychologists who believe that self-esteem, self-acceptance, and psychological success are some of the most central factors that constitute individual mental health in our culture.'²⁶

Conventional accounting control systems do not assist in developing these characteristics.

'Employees tend to view controls as instruments of punishment . . . evaluative techniques that are unfair in that they continually accent failures without showing why such failures are necessary.'²⁷

Industrial psychologists suggest two basic attitudes to the nature of work. 'When people perform their roles because they will be paid or because they like their fellow workers or for other *extraneous* considerations, we are dealing with an instrumental cycle.'²⁸ Work is viewed as a disutility which must be compensated. The alternative view is that 'the intrinsic rewards are part and parcel of the . . . production activities of the system'.²⁹ People enjoy and express themselves through their work.

'When the task generates its own motivation . . . the opportunities for expressing satisfaction are maximised. When performance is in response to rules which must be followed to insure rewards (wages), and escape penalties, the satisfactions tend to be instrumental (extraneous).'³⁰

Behavioural scientists consider that accounting control systems operate as though all work was regarded by employees as of the latter instrumental type. By devising control systems which are supportive rather than punitive, accountants can help to shift work motivation into the expressive category. 'Under conditions when learning, responsibility and internal commitments are valued by the individual, and made possible by the organisation, rewards and penalties . . .

would be given to confirm to the individual that others feel as he does . . . under conditions of self actualisation and learning, success and failure are not experienced as rewards and punishments but as information . . . he can now treat success as indicating that he is on the right track, failure as indicating he is on the wrong track.'³¹

The employee should not be conditioned by punishment and reward to obey a given set of rules. He should be given a task, an objective, and feedback on his success in achieving this objective. He should control, and to a large extent, discipline himself.

Behavioural scientists argue that research results suggest that if this type of control system is possible, it motivates the employee to express himself through his work and so give more of his energy and ability to the organisation.

Argyris suggests that conventional cost control systems which monitor employees and pass the information 'up the line, across, and down again', breach these principles and so lower morale and create hostility between various levels of the organisation.

Argyris suggests alternative control strategies.

'The first strategy conceives a control group as a consulting organisation.'³² That is they collect information on performance but they do not use it to *evaluate* the individual. 'The information collected by any control instruments will be fed back only to the *lowest* levels of the unit whose activities are evaluated by that particular control instrument.'³³ These units need only pass this information 'up the line' at their own discretion.

'A second strategy would be to place all the employees responsible for managerial controls under direct line supervision. Presently . . . most employees responsible for control . . . are in a staff relationship to the line and they report to their own professional supervisor.'³⁴ 'It may be more effective for the budget man to report to the line supervisor whom he is supposed to help.'³⁵ 'He would maintain . . . a confidential relationship with the line.'³⁶ 'He could no longer send reports of the line failures or successes directly to the financial department.'³⁷ 'If the budget employee is dissatisfied with the activities of his client . . . he would be free to go to his client's supervisor. He may not, however, go to the financial department.'³⁸

'A third alternative might be to place the responsibility for the design and use of the managerial controls under the control of the people who are to be controlled by these instruments.'³⁹ 'The employee, his

²⁶ Argyris (1964), p. 37.

²⁷ Ibid., p. 241.

²⁸ Katz and Kahn (1966), p. 117.

²⁹ Ibid., p. 119.

³⁰ Argyris (1964), p. 255.

³¹ Ibid., p. 245.

³² Ibid., p. 246.

³³ Ibid., p. 247.

peer group, and his supervisor could develop jointly a set of criteria by which he could be penalised (including discharged) if he does not meet his objectives.³⁴

Argyris comments, 'One might wonder if employees would not misuse the privileges. Some available research leaves one to doubt it. When individuals are placed in a world that requires a greater sense of self-responsibility, they tend to respond appropriately.'³⁵

We have quoted extensively from Argyris (1964) because the previous passages represent one of the rare occasions where a behavioural scientist has put forward *practical* alternatives to existing control procedures.

We note that the emphasis throughout is on preventing evidence of failure being passed to supervisors before 'the lowest levels of the unit whose activities are evaluated' had a chance to rectify matters. Argyris seems to dislike all control systems which evaluate employees *before* they have a chance of evaluating themselves.

As we understand him Argyris is arguing in favour of an extension of what Elliot Jacques has called 'the time span of discretion of employees'.³⁶

Another reason why control systems should be supportive rather than punitive is that punitive systems distort the accuracy of upward information flows.

'Managerial, supervisory, and non-supervisory employees all fear measurements used for policing purposes. They are, consequently, motivated to distort these measurements in directions favourable to themselves. Widespread distortion for protection at every hierarchical level has been demonstrated in many studies.'³⁷ 'When measurements are used for self guidance rather than policing, the motivation to distort the data is largely removed.'³⁸

As Argyris wryly comments 'Ironically if budgets are to be effective they must rely heavily on the very people whose behaviour they are designed to control. Moreover many of them are designed and utilized in a manner implying that the employee can be trusted to give accurate information *but cannot use it competently*'.³⁹ (My italics.)

It is suggested that *accurate* information will be sent 'up the line' if, and only if, the employees view the control system as supportive rather than punitive.

The major obstacles to making a control system non-punitive is that the supervisor is usually the 'gate-keeper' to the subordinate's future prospects in the company. The subordinate is likely to believe that reporting unfavourable performance will bias the 'gatekeeper' against him *even if it would not*.

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Ross⁴⁰ has experimented with the idea of separating evaluation from control and shows that this improves communication.

A maintaining and reporting system which is independent of the employees controlled would solve the 'accuracy' problem, but would breach the supportive and co-operative conditions which, as we noted earlier, are held to be desirable by behavioural scientists.

A final reason why punitive control systems are held to be undesirable is that they breed resentment against accountants.

An early (1952) study of the budgeting process within a United States corporation disclosed an astonishing amount of suppressed aggression against the accounting department.

'Most of them (accountants) are warped and they have narrow ideas.' 'Most of our accountants are narrow and short-sighted . . . they are what I call "shiny pant book-keepers". They are technicians. They don't know how to handle people.' 'One of the worst human problems we have is the poor job of selling that is done with cost records and budgeting control.'⁴¹

Argyris explains this aggression in terms of the fact that, 'Success for the budget supervisor means failure for the factory supervisor.'⁴² 'The finance man cannot take the shortest route between the foreman and himself . . . the finance man achieves his success when *his* boss knows he is finding errors.'⁴³

A punitive non-co-operative control system creates a conflict of interest between the accountant and his client. This breeds resentment against the accountant and tends to isolate the cost control department, making it less useful as a control device.

6. *Supportive relationships are violated if information is withheld from employees.*

There is a folk tale in accounting circles about the canny old accountant who believed that the more important the information the deeper it should be locked away in the company safe. The training of the qualified accountant emphasises caution, stewardship and security; valuable possessions need to be protected, therefore important information must be preserved for the eyes of the few.

Behavioural scientists are particularly critical of this 'stewardship' attitude of accountants to information.

It may be argued that certain types of information which give a company a competitive advantage must be concealed, i.e. the formula for Coca Cola or a novel

³⁴ Argyris (1964), p. 248.

³⁵ See Elliot Jaques (1967).

³⁶ Likert (1961), p. 208.

³⁷ Ibid., p. 209.

³⁸ Argyris (1964), p. 242.

³⁹ Ross (1957), quoted by Likert (1961).

⁴⁰ Argyris (1953), pp. 103-6.

⁴¹ Ibid., p. 103.

⁴² Ibid., p. 104.

marketing strategy, but the value derived from most information is a positive function of its width of diffusion. 'The higher the productivity, the greater the accuracy of perception. Good communication and high performance go together.'⁴³

'Under the classical theory of management, all the information obtained from measurements, such as accounting, production, turnover . . . goes primarily to the top of the organisation. There is a rapid decrease in the amount available as one proceeds down the hierarchy.'⁴⁴

This practice is criticised as dysfunctional. 'Under the newer theory, the flow of information yielded by measurement would be drastically altered. Each work group would regularly receive summary reports showing results for the organisation as a whole and for the major units . . . of which the work group is a part.' 'Any facts or measurements of legitimate interest to a member of the organisation would not be withheld.'⁴⁵

What advantages are claimed for this 'newer theory'?

'Making the summary information available to each work group is a necessity if a *sense of responsibility* for costs, waste, performance, etc., is to be developed in the group and if the group is to react *intelligently* and *constructively* to *overall* problems of the organisation.'⁴⁶ (My italics.)

And in addition:

'To be denied access to information which he feels is relevant and important to him violates the principle of *supportive* relationships. On the other hand, to be given all the information to which he feels entitled, or to know that he can have access to it, increases his *sense of personal worth*'⁴⁷ (My italics.)

It is suggested that free information flow (a) allows the parts to mesh efficiently into the whole and (b) improves morale.

7. Accountants have a vested interest in making business systems closed systems rather than open systems.

Systems theorists⁴⁸ differentiate between *closed* systems and *open* systems. A closed system, like a clock or a petrol engine or a national health service hospital, is relatively insensitive to changes taking place in its environment. There is little communication between the system and its environment. An open system, by contrast, is highly sensitive to the changing nature of its environment and enjoys a rich pattern of communication with its environment. No system is completely

closed or completely open. Openness is a relative concept.

Modern management theorists⁴⁹ emphasise the relation between openness and social efficiency and therefore, in the long term, between openness and profitability. All business organisations are open systems but some are more open than others. Relatively open business organisations exploit new techniques and profitable opportunities quickly. They appreciate the need for flexibility and adaptability. They learn by experience to cope with the problems inherent in change.⁵⁰

By contrast the relatively closed business organisation spends too much time contemplating its own entrails. Like the Lady of Shalott it stands with its back to the world, looking inward. Since a closed organisation is relatively insensitive to profitable opportunities lying *outside* the organisation it must concentrate on cost cutting to remain competitive, but the opportunity for profit in this area is limited compared to the opportunities lying unexploited in the environment.

Behavioural scientists complain that accountants have a vested interest in making a business system a closed system. The relative success of an open system is monitored by its environment, but a closed system 'needs special mechanisms to insure continuing and reliable performance'.⁵¹ The setting up of internal cost and profit centres creates a highly differentiated internal structure, each sub-system develops its own goals and the overall system goal is obscured. While 'the more layers in the hierarchical system and the more control devices, the greater the expansion of non-productive activity'.⁵²

Also cost cutting and close control throws the spotlight on to the accounting rather than on to the marketing function.

The accountant is being accused of empire-building at the cost of closing the business system to outside influence.

Another, and rather more subtle criticism of accountants is that the budgetary control and standard cost systems they operate induce a 'closed' attitude of mind among the managers who use them.

'A second error lies in the notion that irregularities in the functioning of a system due to environmental influences are *error* variances (which) should be *controlled out*'.⁵³ (My italics.) Managers are conditioned to 'guard against such influences in a defensive fashion'. 'Open system theory, on the other hand,

⁴³ Likert (1961), p. 49.

⁴⁴ Ibid., p. 206.

⁴⁵ Ibid., p. 207.

⁴⁶ Ibid., p. 206.

⁴⁷ Ibid., p. 207.

⁴⁸ See Katz and Kahn (1966), Ch. 2 for a lucid introduction to systems theory as applied to social organisations.

⁴⁹ See Emery (1969) on this topic.

⁵⁰ See Bennis (1966), Ch. 2, 'Democracy is inevitable'.

⁵¹ Katz and Kahn (1966), p. 126.

⁵² Ibid., p. 125.

⁵³ Ibid., p. 27.

would maintain that environmental influences are not sources of error variance but are integrally related to the functioning of a social system and that we cannot understand a system without a constant study of the forces that impinge upon it. Thinking of the organisation as a closed system results in a failure to develop the intelligence or feedback function of obtaining adequate information about the changes in environmental forces.⁵⁴

Conventional control systems 'draw attention to sources of imbalance within an organisation (but fail to) reflect the mutual permeation of an organisation and its environment that is the cause of such imbalance.'⁵⁵

In other words conventional control systems tend to imbue the budget or standard set in advance with a normative significance. It becomes something desirable in itself. Outside influences which distort performance away from the budget are cast in the role of 'undesirable influences' which one must try to *overcome*. But, far from being undesirable, these irregularities might in fact be signalling opportunities to be exploited! It depends on one's attitude of mind.

Behavioural scientists suggest that rigid and detailed control systems breed a 'closed' attitude of mind while less rigid control systems with less precise objectives leave more room for initiative and creativity.

Conclusions

The growth of education and the maintenance of full employment has undermined the old authoritarian style of leadership and control. The modern style of leadership tends to be more democratic, more participative. The subordinate expects to be given more autonomy.

This broad secular trend has permeated into every level of society and into every type of institution, including business organisations.

Behavioural scientists complain that most contemporary control systems in business have failed to adapt to the new democratic style. Contemporary control systems are based upon a set of assumptions about human behaviour which are no longer valid.

Since most control systems in business are designed and operated by accountants, a good deal of the

behavioural criticism has been directed at accountants.

The principal points of criticism are that traditional accounting systems:

- (a) Either ignore human behaviour or utilise an obsolete model of human behaviour.
- (b) Ignore the value of human assets and changes in the psychological state of the human organisation.
- (c) Are punitive rather than supportive.
- (d) Have a tendency to encourage a *closed* attitude of mind on the part of management.

Behavioural scientists claim that these flaws in accounting control systems make business organisations less efficient both as productive and social institutions.

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⁵⁴ Katz and Kahn (1966), p. 27.

⁵⁵ Emery and Trist (1960), p. 84, quoted by Likert (1961).

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The Reform of Corporation Tax

John Chown

Chapter 1. Introduction

1. The British tax system was built on brilliant nineteenth-century foundations, but years of piece-meal changes added to the complexity and detracted from the logical framework of the law. Company taxation in particular suffered from a rather forced attempt to adapt a personal tax system to a different situation. Ever since the war we had departed from the simple concept of 'standard rate deducted at source', and most people accepted that a radical reappraisal was long overdue. Mr Callaghan bravely, if misguided, attempted to recast the system in 1965, but the voluminous amendments, both to the original 1965 Bill as it went through the House and in successive Finance Acts, revealed serious weaknesses in the preliminary thinking. Many of us thought at the time that the concept, as well as the detail, was unsound. This view has gained support with experience.

2. The new Government has pledged itself to far-reaching changes, and it is vitally important that both the concept and the detail of these should this time be really carefully thought out. The implications, both national and international, are much wider than may be supposed and it is hoped that the present Paper will stimulate informed public discussion.

3. The Paper is written from the point of view of a critic of the 1965 system but is certainly not intended simply to be a polemic in favour of changing it. It is rather a warning against over-hasty change, and is meant to encourage discussion of alternative reforms earlier rather than later.

4. The case for a corporation tax in 1965 was not that by adopting it we could then vary company taxation independently of personal taxation, since we could already do this by varying the rate of profits tax. Nor was it that we could then treat retained and distributed profits differently, since that could be achieved under the old system by a differential profits

tax such as that which existed from 1947 to 1958.

5. The case was an administrative one. Companies had, like individuals, paid income tax, but they had also paid profits tax to deal with the special policy requirements referred to above. These two taxes had different rules and were even based on different years of assessment. How much easier, it was argued, to integrate them into a single 'corporation tax'.

6. It is important to recognise that a corporation tax system to achieve this could have been devised without making any changes in the scope or economic impact of company taxation. The *substance* of the tax system could have remained unaltered while the legal *form* was made simpler and more comprehensible to the taxpayer. Prior to the 1965 Budget the Inland Revenue already had such a reform in draft. They had published in April 1964 a White Paper, 'A Scheme for an Accounts Basis for Income Tax on Company Profits', which explained the advantages – and, more important, the very considerable transitional problems – of bringing company income tax (assessed on the profits of the previous year) into line with profits tax (assessed on the profits of the current year). Once this difficult transition had been made, it would have been fairly easy to bring in a corporation tax which rationalised the structure of the system whilst preserving its general effects.

7. Equally, far-reaching changes in the *substance* and economic effects of the tax system could have been introduced without changing the basic structure of an income tax and a separate profits tax. The 1965 Finance Act combined changes in both substance and structure, and this confused much of the public discussion. The structural change may well have been for the better (although the transitional problems were very clumsily handled), but they unfortunately diverted attention from the far-reaching and dubious changes in economic substance. It was not even possible to distinguish clearly which of the side effects were deliberate and which were accidental.

8. For example, the 1965 changes penalised dividends compared with profits retained by public companies: this was intended. They were also accused of taxing companies more heavily than some partnerships, and *growing* private companies more heavily than public companies. They imposed heavy penalties on income from overseas investment, but in a somewhat random and haphazard way; made preference dividends more expensive than debenture interest; altered the investment policy appropriate to charities, and discouraged portfolio investment in the UK by foreigners.

9. Some of these changes may have been desirable and someone was presumably prepared to make a case for all of them, but it was practically impossible to separate out the effects of each policy change for detailed critical discussion.

10. A corporation tax can never be considered in isolation from the general tax system. A company is, after all, an artificial creation of the statute law with 'no body to kick and no soul to damn'. It may be administratively convenient, or politically expedient, to impose a separate tax on companies, but such a tax must ultimately fall on, or affect the behaviour of, individuals, whether as shareholders, directors, customers or employees. In economic terms, the effects of company taxation must be seen as their effects on the spending power or motivation of *individuals*. Some supporters of the 1965 proposals may dispute this statement, and economists will recognise that we are touching on the debatable and elusive subject of 'tax incidence'.

11. An earlier draft of this Paper was prepared in February 1970 and circulated to a number of people some of whom have been kind enough to make detailed comments. Since then, Professor van den Tempel has published his Report, 'Company Tax and Income Tax in the European Communities'. This has thrown the whole debate wide open once more. The Report and much other new material has had to be digested which has considerably expanded the task of revising (and really now re-writing) this Paper.

12. In another sense, the van den Tempel Report has simplified our task. By putting forward what amounts to the present UK system as a model for Europe, he has filled a missing gap in the literature. We had a corporation tax, but no coherent and rational written case for it. The Government's economic and fiscal advisers doubtless wrote private papers for the Government but these have never been published. The fiscal history of the last few years might have been very different had they published in a form available for the critical comments of their peers. One of the reasons why hearsay evidence is not

admitted in a Court of Law is that the original witness is not available for cross-examination. On the same principle, there is a convention that *genuine* academic respectability is imparted by publication. Merely dropping the name of Professor X is not enough.

13. Chapter 2 deals briefly with the history of recent EEC experience and introduces Professor van den Tempel's three Systems. Chapter 3 gives a personal view of the economic arguments against the post-1965 UK system while Chapter 4 is a critical examination of Professor van den Tempel's rather different approach. Chapters 5 and 6 are analytical rather than controversial and deal with the international and other constraints affecting the choice of system.

Chapter 2. Corporation tax and its reform in other countries

1. We begin with a brief account of corporation tax systems in the countries of the European Economic Community and of some of the changes that have been made or suggested in recent years. This will provide a convenient introduction to the subject and an outline of the three main systems which have to be considered. It will be seen at once that the 1965 changes ran counter to the experience of the Common Market countries and were a step away from harmonisation. On the other hand, opinion within the EEC has recently been swinging back towards something rather like the present UK system. The mere fact that most other countries do things in a different way from us is not evidence that they are right. (Indeed to our grandfathers it would have suggested a widespread and stubborn ignorance on their part.) It may be enlightening to examine the experience of countries which have tried a particular experiment before us, especially if it has subsequently been abandoned or widely criticised. Historical and comparative information of this kind needs to be treated with some caution. What works well in one set of institutional conditions may be totally inappropriate in another. A particularly significant difference between the United Kingdom and the present members of EEC may be the existence in the United Kingdom of a broadly based active and adaptable market for publicly quoted equity securities.

2. Most European countries had by historical accident always treated companies and their shareholders as separate taxable entities. As tax rates increased, the resulting double taxation on distributed profits led to precisely those economic problems discussed in Chapter 3. Companies came to rely on ploughed back profits for expansion, the development of capital markets was hindered, and old and

often inefficient concentrations of industrial power were perpetuated. Ways of mitigating what is known as 'economic double taxation' became one of the most widely discussed aspects of tax reform. The solutions proposed are of two kinds, the split rate or double rate system (System B) and the set-off, credit system or 'avoir fiscal' (System C). Professor van den Tempel was commissioned by the European Economic Community to advise on the choice of system. His report, dated November 1969, defines the three systems as follows:

A. The classical system

'The company tax and the composite tax on the income of individuals (tax on the whole income) are independent of each other. The rate of company tax is the same for the profit retained as for the profit distributed. For the application of tax on the income of the shareholders the dividends are treated in the same way as the other income. This system is in force at present in Luxembourg, the Netherlands and the United Kingdom. It was formerly applied in Germany and in France.'

B. The system of a double rate

'In order to reduce economic double taxation on dividends the rate of company tax applied to profits distributed by a company is lower than that applied to profits retained. The dividend is then included, in the same way as the other income, in the assessment of income tax. The reduction of economic double taxation thus occurs within the sphere of the company. This is the system in force in Germany, for the so-called open share companies (kapitalmarktbezogene Gesellschaften) the two rates of Körperschaftsteuer (corporation tax) are at present 51 per cent and 15 per cent.'

C. The system of set-off

'The rate of company tax applied to the retained profits and to the distributed profits is the same. In order to reduce the economic double taxation of dividends, part of the company tax paid on the profits distributed is set-off against income tax. The reduction of the economic double taxation of dividends takes place here in the sphere of the shareholder. This system is applied in France. The rate of company tax is 50 per cent; half of the tax charged on the profits distributed is set-off against income tax. In Belgium, this system forms the main structure. The legislation however, also contains elements of other systems.'

3. The most developed example of System C is that which has been in force in France since 1965. Corporation tax is imposed at a flat rate of 50 per cent

but when a dividend is paid to a French domestic shareholder the recipient is granted what is known as an 'avoir fiscal' equal to half the underlying corporation tax. He is then subject to personal tax on the cash dividend *plus* the avoir fiscal, but can deduct the avoir fiscal from the tax so calculated, claiming a refund if necessary. This is explained on page 25.

4. Germany adopted the split rate system in 1953. Undistributed profits of companies were taxed at 51 per cent while distributed profits pay only 15 per cent. (There are also municipal taxes of about 12 per cent on all profits but this is allowed as a deduction in arriving at profits subject to federal tax and does not affect the comparative arithmetic in the domestic example.) Profits retained to pay taxes are themselves taxed as undistributed and the maximum distribution that can be made out of profits after municipal tax of DM. 10,000 is DM. 7,656. The following example illustrates the position:

	Units
Gross Profit	100.00
Corporation tax on undistributed profit (51 per cent on 23.44)	11.96
Corporation tax on distributed profit (15 per cent on 76.56)	11.48
	<hr/>
Distribution	76.56

5. The similarity between the pre-1965 United Kingdom and the post-1953 German system is remarkably close and was pointed out in the Neumark Report on 'Tax Harmonisation in the European Economic Community' published in 1962. Neumark recommended the adoption of the split rate system throughout the Common Market and said that if the United Kingdom became a member we would not have to make any material change in the substance of our own system. Prior to 1965 we were, by accident, pretty well harmonised already, and the implementation of the 1964 White Paper would have taken us just about there.

6. Neumark had a statistic, 'Percentage A', which he defines as 'the percentage of limitation of discrimination in respect of profits distributed in the form of dividends'. A zero figure indicates full double taxation while a 100 per cent figure would indicate complete neutrality and no separate company tax on distributed profits. The following table shows this figure first as taken from the Neumark Report and then recalculated on 1970 tax rates and systems. It will be seen that Belgium and France have, in substance

	1962			1970		
	Company Tax on Profits		%	Company Tax on Profits		%
	Retained	Distributed	A	Retained	Distributed	A
Belgium	28.57	21.87	23.44	40.60	21.05	48.15
France	50	50	0	50	25	50
Germany	51	23.44	54.04	51	23.44	54.04
Luxemburg	40	40	0	40	40	0
Netherlands	45	45	0	46	46	0
United Kingdom	53.75	24.49	54.44	42.50	42.50	0
Neumark Recommendations	50	25	50	50	25	50

though not in form, come into line with the recommendations. Late in 1964 the French, who still had an unreformed corporation tax, decided the time had come for change. Proposals were drafted for a split-rate System B in line with the Neumark recommendations but, for reasons explained in Chapter 5, they abandoned this proposal and decided to adopt the credit System C. Corporate profits were still taxed at 50 per cent whether distributed or not, but half the corporate tax underlying a dividend paid could be used by a resident recipient as a credit against personal tax liability and tax actually reclaimed if necessary. This gives an answer consistent with the internal economic objectives of the recommendations. As Claudio Segré pointed out: 'The double rate system and the tax credit system did not differ much in their impact on the domestic market but this is far from being the case in respect of their effects on the scope for international integration of equity markets.'

7. The choice between System A on the one hand, and Systems B or C on the other, depends principally on domestic economic factors which are discussed in Chapters 3 and 4. If System A is rejected, the choice between B and C and their variants must be determined by technical international tax considerations. These are dealt with in Chapters 5 and 6.

Chapter 3. The economics of corporation tax

1. The central economic feature of the type of corporation tax introduced in the United Kingdom in 1965 is that it involves the full double taxation of distributed profits and penalises distributions. International comparisons show that countries which started out with something like our post-1965 system have been moving towards something remarkably similar to what we had before. This is not an argument against the 1965 changes: the other countries may have been wrong, or the circumstances may be different. It does suggest that the economic case against Mr Callaghan's system ('System A') deserves closer examination.

2. In this Chapter, we consider only the domestic arguments as they affect the United Kingdom. It is

the most contentious part of the Paper and is intended to represent a personal point of view.

3. The case for the 1965 measures must rest on equity or efficiency, now that the 'harmonisation with Europe' arguments are seen to be spurious.

4. Much of the thinking behind the 1965 Act seems to derive from the Minority Report of *The Royal Commission on Taxation* published ten years earlier. The argument on equity seems to be based on the assumption that if the proportion of profits paid out as dividends can be reduced, share prices will fall:

'As the Majority state, Stock Exchange values of securities depend on dividend payments far more than on earnings: "the market makes little difference in valuation for differences in the earnings cover of dividends if plainly adequate". This is confirmed by the movement of Stock Exchange values since the war. Despite the fact that total net earnings after all taxation have risen more than three times, this has not been reflected in the Stock Exchange prices or ordinary shares which only approached double the pre-war level in the course of 1954 when the payment of ordinary dividends also approached double the pre-war amount.' (Para. 100.)

This proposition is, however, denied by the movement of Stock Exchange prices since 1955. The under-valuation referred to has been corrected. It is now thought by some economists as to have been partly caused by a tax system (the two-tier Profits Tax) remarkably similar to the 1965 measures in its effects and which, it was argued, led to the inefficient use of corporate resources.¹

5. There is no real reason to suppose that one system of company taxation is 'fairer' than another. Ignoring transitional effects which can alter the net income of particular individuals quite dramatically, it does not matter much from an equity point of view how a given sum in taxation is collected from companies and these shareholders. Professor van den

¹ A. Rubner, 'The irrelevancy of the differential profits tax', *Economic Journal*, June 1964.

Tempel, in his comparisons, assumes that 'System A' will involve a lower rate of corporation tax than the other two systems. Once the investing public and the issuing houses have adjusted their actions to a new system there is unlikely to be a material impact on income distribution.

6. The 1965 changes were said to be 'revenue-neutral' at a 35 per cent corporation tax rate. The rate, in fact, rose to 45 per cent and it may be arguable that the total taxes now imposed on companies and their shareholders would have been insupportable under the old system. This could have indirect implications for income distribution, but this raises the old 'passing on' question, who really bears the tax in the end? Provisionally, we must decide that the system chosen has no material impact on the distribution of the tax burden over the community. Van den Tempel (paragraphs 58-62) comes to much the same conclusion.

The efficiency arguments

7. It is argued that corporation tax which discriminates against distribution would promote saving and investment. These are two quite separate points. If £100 of pre-tax profits are distributed, a standard rate shareholder receives £35.22, after corporation tax at 42.50 per cent and income tax at 38.75 per cent. This, he may choose to spend or save. If the profits are retained he will receive nothing in cash, but as the asset value underlying his shareholding has increased by £57.50 the shares should (*ceteris paribus*) rise correspondingly and he may feel justified in spending some of his capital. If investors, in aggregate, spend more out of £35.22 net dividend income received in cash than they do out of a pre-tax capital appreciation of £57.50 (which will eventually be reduced on realisation to £40.25 by capital gains tax) then the discouragement of distributions might increase effective saving (or reduce spending) by investors. This is likely, but not self-evident, and there is scope for further research. The arithmetic is different for surtax payers and gross funds. Aggregate saving might then be increased (provided that the Government does not spend the extra tax revenue). On the other hand, a System A corporation tax may discourage savings by decreasing the net cash return available to investors on new investments, and hence the inducement to invest.²

² A critic of the 1970 draft has pointed out that the Minority Report did not attempt to argue an economic case as such but was a commentary on the majority's own discussion of the subject. He also correctly points out that 'a sharp distinction must be made between the case for alleviating the burden of taxation and the rules under which any given sum taken from companies and their shareholders is collected. Most of the people who argue against the

8. Even if System A type corporation tax increases net overall saving, does it also encourage investment? The incentive given is to retain cash flow regardless of whether or not it is invested. It may become easier for some companies to finance growth out of retentions, but it will become correspondingly more difficult for other companies to expand by raising new capital. If some companies reduce dividends, the cash flow to the capital market will be reduced and it may be harder for other, faster-growing, companies to raise equity capital. The profits retained may flow to productive use through the banking system, but to the rapidly expanding company the debt/equity ratio is probably a more important constraint than the cost or availability of overdraft facilities.³

9. The effect of a corporation tax on aggregate investment is highly uncertain and it may well reduce aggregate investment. But, if the Government wants to encourage *total* investment (although, in practice, governments more frequently seem to take action to restrict investment), it can do so more directly by influencing money supply and credit conditions, by general budgetary policy, by altering the balance between direct and indirect taxation, by initial and investment allowances, or by giving direct subsidies to or cheap loans in connection with specific investment projects.

10. The central question is what effect a tax system will have on the *quality* rather than the *quantity* of investment. Politicians (and even some economists who ought to know better) sometimes talk as if capital investment, as such, were 'a good thing' which contributes to economic growth. Some even suggest that there is such a thing as a 'capital/output ratio'—an automatic causal relationship between capital formed within (or invested from outside in) a country and that country's increase in gross national product. This is an inaccurate picture of what really happens. If £1 million is invested in a factory, all we know for certain is that we have committed £1 million worth of labour, raw materials and imported goods to the factory. These goods are not available for consumption, for export, or for investment in other projects. If investment is increased, the standard of

double taxation of dividends are mainly concerned with the burden of taxation as such. They would be less interested in getting relief from the double burden if this involved an equivalent rise in the rate of corporation tax.'

³ A critic has suggested that even in the period 1958 to 1965 when there was no tax discrimination against distribution, over 70 per cent. of the financial requirements of publicly quoted companies was financed out of retained profits, and that it is naïve to suppose that external finance is a substitute for retentions. The amount a company is able to raise externally is related to the growth of its own reserves.

living is *held back* in the short run and the balance of payments is *worsened* in the year in which the investment takes place. The benefits, if any, come later.

11. It is not unknown for investment projects, in both the private and in the public sector, to be a total write-off, representing a net loss to the economy of the total sum invested. On other projects, the returns experienced vary widely. If we want to generate more economic growth we should do all we can to ensure that limited resources are used in the most effective way possible. This means that as a rule capital should be invested in those projects which will show the highest return.⁴

12. There is in any case a tendency, partly because of custom and partly because some company directors are motivated by prestige rather than efficiency, for profits to be retained even when there are no particularly attractive projects in which they might be invested. Because there is a retained cash flow, management looks around for something to do with the money and is tempted to divert real resources to relatively unprofitable uses.

13. The System A type corporation tax encourages companies to go even further in this direction, tempting them into profitless expansion and depriving more dynamic companies (or companies in more rapidly expanding markets) of resources which they could put to much better use. It appears to strengthen incompetent and complacent managements and may weaken the thrusting companies which, because their rate of growth exceeds their rate of profit, must therefore look to the capital market for new finance. Such research as has been done so far on this subject points to very disturbing conclusions. I. M. D. Little, in 'Higgledy Piggledy Growth' analysed the relationship between retained earnings and growth in profits and arrived at the alarming, though tentative, verdict that the rate of return on invested retentions is usually low and occasionally negative. 'One seems left with the conclusion that those companies which retain a relatively high proportion of profits select relatively unprofitable investments.'⁵

14. Companies financed solely by retentions can only achieve a limited rate of growth. If they are earning 30 per cent on their capital and distribute nothing, their rate of growth in equity assets is limited to 17.25 per

⁴ There are, of course, 'externalities'. The investment decision is taken after a calculation of the private benefit, which may not be the same as the social benefit. Unless there are special and usually identifiable factors such as pollution on the one hand or an infra-structure stimulation on the other, it is likely that the investment offering the higher financial yield will also offer the greatest social benefit.

⁵ It is also suggested that the argument is irrelevant because for a fast growing company more retention and more outside finance go together and are not alternatives.

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cent per annum. As it is the equity assets which form the base for borrowing once the company has achieved an optimum debt/equity structure, this is also more or less the limit on growth of gross assets. (This is a slight over-simplification in that as a company grows larger, its maximum acceptable debt/equity ratio may also rise). It is in the nature of an efficient capital market that some companies, for a time at least, will grow much faster than this. A company which makes a breakthrough to a new level of efficiency or which is exploiting a new product may start its life as a public company with a net worth of, say, £500,000. The whole point of going public may well be to facilitate expansion and its technological and managerial expertise may justify it growing to a net worth of say £10 to £20 million just as soon as is physically possible. Such a company will have to grow, not by retention of profits, but by new capital. As a financial strategy it may be better to distribute a high proportion of its profits to keep its shares on a reasonable yield basis and then to make frequent rights issues. Self financing as a strategy is only really available to the companies whose growth potential and earnings on capital are, more or less, average. What we need is to encourage the *above* average companies: this is the function of a well-ordered capital market.

15. It is true that retention and new capital are complementary, and economists are indeed able to produce statistical evidence to show that rapidly growing companies which have recourse to the capital market also retain a high proportion of their profits; but anyone who has actually worked in the issue department of a merchant bank will know that the correlation does not indicate a causal relationship. One would expect the level of both internal and external financing to be positively correlated with the growth opportunities offered. A growing company raises more outside capital *and* returns a higher proportion of profits because it is growing. It does not raise more capital because it retains more profits.

16. It has been suggested that there is, in fact, a good reason for the relationship and that unless shareholders feel that a company which they invest in has a fair amount of capital appreciation and rising dividends per share over time, they will refuse to put more money into the business. Rising earnings and dividends per share can only be ensured (it is said) if some part of the growth of total capital and reserves comes from retentions.

17. This statement deserves closer examination, and appears to rest on a misunderstanding of how investors and investment analysts actually make their decisions. Consider an over-simplified model of how share prices are determined. Assume that the average

rate of return on industrial assets is 20 per cent per annum before, and 11½ per cent after, corporation tax. A company with assets of £1 million, consistently earning at this rate and expected to do neither better nor worse in future will have profits of £115,000. It might distribute the whole of these as dividends. If it did, there would be no growth as both assets and rate of return on assets would be constant. (Depreciation deducted in computing profits would generate cash flow for replacement of fixed assets.) Investors who can obtain nearly 10 per cent on gilts might well want an 11½ per cent return on a static industrial investment. On this assumption, the market capitalisation would equal the asset value.

18. If the company consistently distributed half its profits as dividend and re-invested the retained half to earn the same 20 per cent, the dividend yield would be 5½ per cent, growing at 5½ per cent per annum. There is no reason to suppose that the market would place a *materially* different value on the shares in this case, although the second policy is more favourable than the first in the long run to the tax-paying investor. In both cases, the price/earnings ratio would be 8·7:1.

19. What shareholders are looking for is companies with above average return on capital. A company earning 30 per cent on its assets would by the same reasoning have shares standing, on an earnings basis, at 50 per cent above asset value. Assume that the asset value is £1.00 per share and that the shares stand at £1.50. If the company can still procure a *marginal* return on new capital at the same rate it could make (for instance) a one-for-one rights issue at £1.00 giving a theoretical ex-rights price of £1.25. The asset value of the whole company would then be doubled and on the assumption, the earnings, too, would double which indicates a share price of £1.50 on an earnings yield basis. The shareholder, by investing a further £1.00, would have created an asset worth £1.50 in the market and this process could continue indefinitely until the marginal rate of return on new capital fell to equate with the average return available on quoted securities. A company should be permitted, and indeed encouraged, to grow to this point just as quickly as managerial limitations and the gestation period of capital permit.

20. The finance department of a well-organised large company will try to ensure that the cut-off rate of marginal return on capital is the same for all divisions and activities, adjusted for uncertainty. Equating marginal returns is the classic way of achieving optimum use of scarce resources.

21. On the same principle, if we want to make the best use of the capital generated within the country we should ensure that as far as possible the same cut-

off point is used by rapidly growing companies which need access to the new issue market, by companies with adequate potential retentions and indeed by nationalised industries.

22. The corporation tax tends to break up and to distort the capital market. In an analysis a few years ago, Professor Merrett showed that logically a financially efficient company should require a cut-off rate of 13·8 per cent (the figure would be higher today) even if the expansion is to be financed out of retention. An unsophisticated company may regard retentions as offering finance at zero cost and expand accordingly. This represents natural selection in reverse, 'the survival of the fattest'.

23. The 1965 Finance Act came just at a time when finance directors of companies were growing more sophisticated about the use of discounted cash flow, marginal costing and other techniques for making rational financial decisions, and when the capital market had become more flexible and more concerned with earnings rather than with dividends. It is a great pity that just as a more coherent capital market was beginning to develop and to free itself from some of the faults mentioned by its left-wing critics, a tax system should have been introduced which broke up and distorted this market and interfered with the process of rational decision taking.

24. A system in which a fairly full distribution of profits is the norm is likely to be more efficient. A company wishing to retain profits for expansion has then to explain to its shareholders that the opportunities open to it are comparable with the other opportunities open to them in the market.

Chapter 4. The economics of the van den Tempel report

1. The van den Tempel Report is the most recent document to examine authoritatively the relative merits of various types of corporation tax. A summary is found in Appendix I.

2. Part II of the Report (paragraphs 13 to 73), 'The effects of Systems A, B and C in a closed economy', comes down on the side of System A. One of the reasons advanced in favour is that it provides an easier solution to certain problems of harmonisation within the Community. The present chapter consists of a brief critical examination of the economic arguments put forward. The international implications are discussed later.

3. The Report makes a good point in paragraph 12: 'the expression "economic double taxation" is used for convenience and no value judgement is attached to it. The expression "double taxation" is based on a formal criterion and says nothing about the advisability or inadvisability of the phenomenon.'

We agree that we should not start with an emotional bias against one system because it happens to be labelled 'double taxation'. There is nothing self-evidently either immoral or inexpedient about imposing two separate 30 per cent taxes on the same profit rather than a single 60 per cent tax. The basis of comparison used assumes tax rates which result for each system in the same

'total proceeds of the tax on the profits of public companies and the tax on the dividends of the shareholder'. (Paragraph 9.)

4. Professor van den Tempel rightly ignores for the purpose of his study differences between countries as to the way in which taxable profits are measured. He also ignores

'the taxation of capital gains even if they arise from a retention of profits by close companies'. (Paragraph 10.)

This omission is far more serious and is certainly likely to invalidate some of his economic conclusions. Apart from its efficiency in collecting revenue, the most important question to ask of a tax system is how it affects the economic behaviour of those who have to pay it. A corporation tax system affects the behaviour and decisions of both company directors and of shareholders. Many of the more foolish things that are said on corporation tax are the result of looking solely at the effect on one of these groups and not on the other. Shareholders can be rewarded either by dividends or by an appreciation in the value of their shares. The latter derives in part from retained profits. For the shareholder, the comparison is with dividend income after personal income taxes and capital appreciation after capital gains taxes. Taking account of this personal stage of tax on distributed but not on undistributed profits, is obviously going to distort the conclusion in the direction of making it look as if the tax treatment of retained profits is more favourable than it actually is. The omission has no importance in Professor van den Tempel's own country which imposes no capital gains tax on individuals holding portfolio securities. The omission is vital when considering the relevance of his conclusions to the United Kingdom which, at present, imposes such a tax at what is by international standards a high rate.

5. In designing a set of corporate tax rates which produce equality of revenue in all three systems, Professor van den Tempel has to make an assumption about the rate of personal tax actually borne on dividends. As he rightly points out, withholding taxes on domestic dividends (such as the UK Schedule F tax) are really only an administratively convenient pre-payment and bear no necessary relationship to the final tax borne by the individual. He assumes:

'the income tax charged on the dividends received

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by the shareholders is estimated at an average of 33½ per cent'. (Paragraph 17.)

6. This happens to be arithmetically tidy. Assuming that half the profits after company tax is distributed to shareholders, we can compare a 40 per cent corporation tax under System A with a 50 per cent rate under Systems B (with a 16½ per cent 'distributed' rate) and C (with a 50 per cent 'avoir fiscal').

System A		
Profits	100	
Corporation Tax	40	
	60	
Distribution	30	—on which tax 10
Retention	30	
Total Tax	50	
System B		
Profits	100	
Tax 16½% on 30	5	
50% on 70	35	40
	60	
Distribution	30	—on which tax 10
Retention	30	
Total Tax	50	
System C		
Profits	100	
Corporation tax	50	
	50	
Distribution	20	
Retention	30	
To the recipient:		
Dividend	20	
'avoir fiscal'	10	
	30	
Tax at 33½%	10	
Less 'avoir fiscal'	10	
	Nil	
Total Tax	50	

Choosing a different rate of personal tax would have destroyed the neat structure of round figures.

7. Unfortunately, the implications of the choice of this rate are more far-reaching than Professor van den Tempel appears to realise, and his arithmetically convenient arbitrary choice seems inappropriate even for EEC countries and wildly wrong for the United Kingdom.

8. First of all, the degree of discrimination between distributed and undistributed profits depends not on the rate of corporation tax but on the rate of individual

tax. A little thought should make this clear. If personal taxes were low, say 20 per cent maximum, no one would worry about double taxation on dividend income. Companies subject to System A would be unlikely to let double taxation at this level affect their distribution decisions. At the other extreme, if personal tax rates were typically 80 per cent, directors and shareholders would agree that it was nearly always better to retain and re-invest £100 rather than to distribute a dividend which would be worth only £20. The distortion of double taxation would in this case amount to an almost complete freezing of the capital market. At a less extreme level, the distortions of a System A corporation tax are much less serious in the United States which has a high rate of corporation tax and much lower general rates of personal tax, than in the United Kingdom which, even after the excesses of the last few years, still has a lower rate of corporation tax than the United States, but much higher personal tax rates. The case for and against System A corporation tax in any particular country will depend very much on the rates of *personal* tax in that country.

9. The second point is that it is not the overall *average* tax burden on dividends which matters. In the case of any particular individual, what affects his financial decisions is the *marginal* rate, that is the *extra* tax payable on an *extra* pound of income from a particular source. This concept is central to the whole of economic analysis. It is *marginal* utility which determines value, *marginal* cost which determines shortrun output decisions and *marginal* revenue which decides pricing policy. In the same way, it is *marginal* tax rates which influence behaviour.

10. Taking this a stage further, assume that System A only seriously disturbs the capital market when marginal individual tax rates are in excess of some figure, let us say 50 per cent. Now, it may still be that the average rate of tax of all dividend receivers is 33½ per cent. It may even be that the average rate of tax payable at the margin by dividend receivers (weighted, of course, by dividends received) is 33½ per cent. (Given the United Kingdom structure of personal taxation such a conclusion could only be reached by lumping into the average tax exempt investors such as pension funds and charities.) This finding on the averages would not be inconsistent statistically with the discovery that one-third of all dividend income was received by individuals with a marginal rate of tax in excess of 50 per cent. The correct conclusion would then be not that we could ignore the distortion but rather that the distortion was serious in respect of one-third of the funds in the capital market. This would certainly be a finding which would justify corrective action. The problem

could not be dismissed even if it was found that only one-tenth of all capital investment decisions were being taken irrationally because of the distortions of the tax system.

11. Reflections along these lines do, however, suggest that the appropriate domestic system of corporation tax can only be decided within the framework of the domestic system of personal taxation. At low rates of personal tax, the economic arguments for and against the various systems become less important and more weight can be given to administrative convenience. In a country in which the great majority of investors did in fact pay tax of 33½ per cent or less on marginal income, Professor van den Tempel's conclusions could be taken more seriously than in one which imposes personal tax at much higher rates. The only industrial country for which this might be true is the United States.

Professor van den Tempel goes on to discuss what the effect of the different systems will be on dividend distributions and suggests tentatively that a change from System A to Systems B or C will result in some increase in effective net dividend income to shareholders and promptly goes on to suggest that two-thirds of the extra dividends might be spent and one-third saved. (Paragraph 44.) He then goes on to say (paragraph 45):

'It can be considered that this reduction in the savings of enterprises to the advantage of consumption is desirable for general socio-economic considerations, if however, we consider taking into account the level of economic growth, that a reduction in the value of savings is not in itself desirable, the effect will only be favourable if, in return, the allocation of the supplementary supply on the capital market exceeds in quality that which would have been obtained in the case of the retention of profits.'

He goes on to say: 'This is not probable.' This is, of course, central to our disagreement with his arguments. There are many hypotheses but few facts, and this is a subject where there is considerable scope for further research.

12. The tax system affects the supply of savings not only because of the comparative fate of retained and distributed profits, but by making investment and therefore savings more or less attractive. Paragraph 61 admits that

'in spite of the high degree of uncertainty presented by many points in Systems B and C, the ownership of shares becomes more interesting for the small investor'

which would only lead to an influence on the distribution of property

'if the greater attraction of shares led to greater

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savings from income.'

He again goes on to say 'this is unlikely', but this time we are more inclined to agree with him.

13. Finally, in the Section headed 'Socio-Psychological Effects' (paragraphs 63-65) it is stated:

'Opinions differ concerning whether in general the shareholders feel the co-existence of the tax on company profits and the income tax charged on dividends as an unjustified double charge. He compares the arguments for and against the different types of investments offered to him: savings accounts, life assurance, bonds, shares, real estate. He does not usually know to what "previous charges" (company tax or other taxes) these investments have been subjected. He will, moreover, have little interest in this.'

This again is central to the argument for System A and variations of the point have been made by Professor Kaldor and others. It is argued that company tax affects the behaviour of directors while dividend tax affects the behaviour of the shareholders. To the extent to which this is true, System A may be more efficient in pulling in tax revenue. It is unlikely that the total tax burden in the United Kingdom could have been pushed as high during the last five years under the old system of taxing companies and their shareholders or indeed without the introduction of economically clumsy but revenue-efficient devices such as the Selective Employment Tax. This appears to be the most valid argument, next to administrative simplicity, in favour of System A.

Chapter 5. Corporation tax and international harmonisation

1. In practice, there is no such thing as a closed economy. Every non-Communist country is host to foreign corporate and individual investors. Many, including those with which we are particularly concerned, encourage or at least permit their own resident companies and private shareholders to invest abroad. The United Kingdom, in particular, is a substantial beneficiary from the two way movement of capital and enterprise.

2. When an investor receives a dividend from a company or derives profits from a branch or agency in another country, that country and his own country of residence may both claim tax on the same profits. This gives rise to the problem of 'international double taxation' which must be distinguished from the 'economic double taxation' already discussed in a domestic context. In practice, this is mitigated in a number of ways, sometimes by unilateral legislation in one or other of the countries concerned, supplemented by a network of double tax agreements (pioneered by the United Kingdom) which determine

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and limit the taxing powers of different countries. Some agreements provide that a source of income is exempt in one of the countries providing that it is taxed in the other.

3. In other cases, one country (usually but not always the country of source) has a primary claim to tax the income. The rate of tax may be limited by the agreement. The other country may then also levy tax but gives a credit for the tax paid to the first. In principle, this means that the investor pays total tax at the rate applying in his country of residence or in the country of source whichever is higher. In practice there are complications however carefully drawn the agreements may have been. For instance, a resident of a country which imposes high taxes on expenditure and low taxes on income who receives income from a country which taxes incomes heavily at source may find himself suffering the worst of both worlds. There are similar problems where one country taxes capital or capital gains and the other does not.

4. Another well-known problem, dealt with in some modern double tax agreements, is that of the country which gives tax holidays or other concessions to encourage new investment only to find that the benefit of these is neutralised by the loss of tax credit in the country of residence of the investor.

5. The complexities of corporation tax can create problems when capital and income flow between countries with totally different systems. It is becoming increasingly important, particularly for countries such as the United Kingdom and members of the EEC, that tax systems should be harmonised to ensure that, as far as possible, there are no *accidental* biases. An apparently simple change in one country can have far-reaching and often unpredicted side effects on international movements of money.

6. The harmonisation of tax systems does not mean that all countries must impose the same types of taxes in the same way and at the same rates. Each country must be free to determine its own budgetary policy and the type and rates of taxes that its resident citizens are to pay. In a harmonised system which is ideally neutral to international investment, it would not matter whether these citizens derived their income from home or from abroad. Equally, countries can choose their own tax structures on business enterprises within their borders, again provided that they do not discriminate between domestic and foreign ownership. Of course, assuming free movement of people and capital, unusually high rates of personal taxation will encourage selective emigration and unusually high rates of business taxation may discourage capital investment in that particular country. There are many other factors in both these decisions and a few percentage points difference in

tax rates is not going to have a dramatic impact on the movement of people or capital. Governments will take these competitive factors into account in determining their overall policy.

7. In an ideal world capital and enterprise would be encouraged to seek out the world for the best opportunities, there would be no exchange controls and no tax factors distorting international investment. In the real world there are restrictions. Some countries, for balance of payments reasons, want to check the outflow of capital, while others want to discourage undue foreign influence over their industry. It is obviously reasonable enough to use both interest rates and tax rates in an attempt to keep the balance right. Other more direct measures which do introduce a bias may be consistent with harmonisation but the bias should not be built into the long-term structure of tax systems. A harmonised tax system should be neutral as to foreign investment flows but this is not necessarily inconsistent with the separate use of specific, preferably temporary, measures to encourage or discourage the inward or outward movement of capital.

8. An examination of the specific problems of international capital quickly introduces some constraints on the type of corporation tax systems that are available to a country for which the inward and outward movement of investment capital is of great economic significance.

9. If System A is rejected for domestic economic reasons, the choice between Systems B (split rate) and C (tax credit) depends principally on international factors.

10. The 1962 Neumark Report came down in favour of the split rate system for a harmonised Europe. (One of the points made in its favour was that in substance if not in form the UK was, before 1965, already in line.) During 1964 it looked as though France would adopt this system. They then discovered that this would have the effect of reducing the French Revenue's share of the total tax collected on the profits of American investments in France and decided instead for the credit system.

11. When a dividend is paid from a company in one country to a shareholder in another withholding tax is deducted in the country of origin. The rate of withholding tax is usually high unless reduced by a double tax agreement. These agreements generally provide for 'mirror image' rates of withholding tax between pairs of countries. The effect of this is that a country adopting a split rate system does not obtain its fair share of the tax profits of international investment.

12. For instance, a German company investing in the US will receive a dividend that has borne 48 per

cent underlying corporation tax and 15 per cent withholding tax, a total burden of 55.8 per cent. The German Revenue will give the recipient full credit or exemption relief and collect nothing. An American corporation investing in Germany will bear only 23.44 per cent underlying company tax on distributed profits plus 15 per cent withholding tax on the balance of 76.56 per cent, a total tax burden of 34.92 per cent. This will leave a balance of 13.08 per cent to be collected by the US Revenue after credit relief. There would be a real cost to any country unilaterally adopting a split rate system on present international arrangements, and this is precisely what dissuaded the French.

13. Although the French system was favourable to domestic investors, it left overseas investors in French companies paying full corporation tax and withholding tax and resulted in French investors being more heavily taxed on foreign than on domestic securities. This was contrary to the spirit of the European Community.

14. The Commission Report of 23 June 1967 suggested two solutions. It would prefer the universal adoption of the split rate with withholding tax of about 15 per cent collected by the country of source but allowed as a credit in the country of residence. The rate of withholding tax would be higher (say 25 per cent) on payment to shareholders who shelter behind nominees or bearer shares or who are residents of non-EEC countries without a reciprocal double tax agreement. As between participating countries something like three-quarters of the total tax burden would then go to the country of source and the balance to the country of residence of the shareholder.

15. The Commission Report ignored the extent to which their proposals would have led to distortions on the relationships with third countries, notably the US, which retained System A. The US Revenue would collect more than its share of the income from international investment. The only way of reconciling the split rate with international needs would be to get away from the mirror image principle and to renegotiate double tax agreements on the basis of a multilaterally agreed share of revenue between the country of origin of the income and the country of residence of the recipient. Rates of withholding tax would then be adjusted to give effect to this. Germany might impose a high rate of withholding tax on dividends paid to the US while the US would impose a low rate or none at all on dividends paid to Germany. Superficially, this might seem less fair and tidy than present arrangements but in substance it would be superior

16. The relevant provision of the Germany/

Thailand double tax agreement is given in Appendix II, and shows what is possible. Private soundings suggested that the US Treasury was unsympathetic to this approach, although a major British diplomatic initiative might have achieved something. For practical purposes, though, the split rate System B must be regarded as politically dead.

17. The other approach suggested in the Commission Report is to accept the credit system, imposing a corporation tax of (say) 50 per cent but giving shareholders a credit of (say) 25 per cent of the dividend against personal tax. EEC rules would then have to require that a resident of one member country could make a reclaim in respect of tax underlying dividends received from another.

18. This is, in fact, what the French are now doing on portfolio investment. Double taxation agreements have already been re-negotiated with Germany, Switzerland and the United States and there are active negotiations with a number of other countries. The mechanics of this are discussed below.

The van den Tempel analysis

19. Professor van den Tempel (paragraphs 74-78) points out that System A involves few difficulties for international *portfolio* investment. The country of residence of the paying company gets the corporation tax plus a withholding tax of (say) 15 per cent. The country of residence of the shareholder collects the balance of personal tax after allowing a credit for the withholding tax. This is probably a fair division of revenue likely to be acceptable to most governments. Fairness of this kind seems to us important as in its absence governments may be tempted towards restrictive measures on the flow of capital one way or the other. A point which the Report does not make specifically but which is discussed in the Commission document is that where the dividend is paid to a shareholder in a country without a double tax agreement or to an 'anonymous' shareholder the rate of withholding tax would be much higher and this would all be collected by the country of residence of the operating company. Some countries may choose not to impose a high rate of withholding tax in these circumstances in the hope of attracting capital from the growing tax free capital market.

20. In contrast Systems B and C involve 'compensations at the frontiers' (paragraph 75). There is a distinction between direct investments and portfolio investments (paragraph 79). There is no difficulty on portfolio investments under System B for reasons already discussed above (paragraph 81) and also 'if a state applying System B does not take any measure to cancel reduction of company tax in the event of the dividend being paid to non-residents the

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latter obviously also benefit from the reduction of economic double taxation' (paragraph 83). There is a problem when the foreign shareholder is in a position to control distribution policy, when a full distribution can be made followed by the immediate re-investment of the dividend. This point is of course covered in (e.g.) the German/US double tax agreement (paragraph 90). There is also the problem about what to do about the branch of a foreign enterprise. The German solution of a separate rate of branch profits is strictly incompatible with the standard non-discrimination clause in double tax agreements. In any case we have already concluded that System B is probably unworkable in an international context.

21. On System C the Report (paragraph 96) distinguishes between three variants.

'CI. An identical system for national and foreign investors. The reduction for the relief of economic double tax is allowed not only to national investors in national shares but also to foreign investors in national shares.'

'CII. An identical system for national and foreign investments. The reduction is allowed to national investors not only in respect of dividends from national shares, but also in respect of dividends from foreign shares.'

'CIII. Refund of the reduction for cases with an international element. The reduction is allowed exclusively to national investors in respect of dividends from national enterprises.'

22. It seems to us that there is a fourth possibility combining features of CI and CII: this is not discussed. Until recently the French followed variation CIII but are now moving on to variations of CI. Unlike the Commission Report, van den Tempel assumes that the reclaim *will* be made from the country of residence of the company paying the dividend with the proviso that 'it can in fact be made a condition of repayment that the foreign investor submits a declaration from his country of residence. This contributes to the equality of the treatment of the foreign investor and the national investor who only benefits from the tax credit if he is charged to tax' (paragraph 98). Paragraph 99 is a proposal which has been exactly followed by the French in their re-negotiated double tax agreements. A different solution to the mechanics of the reclaim is found in the cases of Germany and Switzerland but the final result is the same. From the point of view of international portfolio investment it seems clear that System CI is the only system which gives a consistent answer. It is not necessary for this solution to be universally adopted for it to be workable in those countries which do adopt it. This is in striking contrast with the System B recommended in the

Neumark Report.

The new French arrangements

23. Corporation tax is imposed in France at a flat rate of 50 per cent. As already explained, when a dividend is paid to a French domestic shareholder, the recipient is granted an 'avoir fiscal' equal to half the underlying corporation tax. He is subject to personal tax on the cash dividend *plus* the avoir fiscal, but can then deduct the avoir fiscal from the tax due claiming a refund if necessary. The following example illustrates the position, assuming full distribution:

COMPANY			
Profits	200		
Corporation Tax (50%)	100		
Available for distribution	100		
SHAREHOLDER			
Personal tax rate	20%	40%	60%
Cash dividend	100	100	100
<i>Plus</i> 'avoir fiscal'	50	50	50
Taxable amount	150	150	150
Gross tax	30	60	90
<i>Less</i> 'avoir fiscal'	50	50	50
Tax due (refundable)	(20)	10	40
Net value of dividend	120	90	60

In the original form of the System, the 'avoir fiscal' was not available to non-residents who had in addition to pay a withholding tax of 25 per cent, or a lower rate prescribed by a double tax agreement. Normally the recipient would be able to credit the withholding tax against personal liability. The value to a non-resident of the same French dividend would therefore be:

Personal tax rate	20%	40%	60%
Net value of dividend	80	60	40

These again are two-thirds of the value of an equivalent French dividend and there was clearly a very substantial discrimination against international portfolio investment.

24. To meet part, at least, of this criticism, the French Loi de Finance 1970 empowered the Government to extend the concept of the avoir fiscal to non-resident shareholders in French companies. This will involve the re-negotiation of double tax agreements. The two first, with Germany and Switzerland, reveal a contrasting approach.

25. The agreement with Germany provides that German portfolio investors (i.e. excluding companies

owning 25 per cent or more of a French company) will be exempt from French withholding tax. They will then be granted the avoir fiscal in Germany, in exactly the same way as a French resident in France:

Personal tax rate	20%	40%	60%
Cash dividend received in Germany	100	100	100
<i>Plus</i> 'avoir fiscal'	50	50	50
Income returnable in Germany	150	150	150
Gross tax	30	60	90
<i>Less</i> 'avoir fiscal'	50	50	50
Tax due (refundable) in Germany	(20)	10	40

26. Although in the first instance it is the German Government which will allow a tax credit or make a refund they will be reimbursed by the French. For every 100 of dividends paid by French companies to German portfolio investors the French Government will pay 27.5 to the German Government. This is the avoir fiscal of 50, less withholding tax at the previous treaty rate of 15 per cent on the cash dividend *plus* the avoir fiscal.

27. The Swiss and the United States agreements read the same answers by more direct means. The shareholder can reclaim the avoir fiscal direct from the French Government, less 15 per cent withholding tax on the cash dividend plus the avoir fiscal:

Cash dividend	100
<i>Plus</i> avoir fiscal	50
150	150
<i>Less</i> withholding tax 15%	22.5
Total net receipt in Switzerland	127.5

28. Swiss tax is then payable on the gross amount of 150, but credit can be taken for the 22.5 French withholding tax. This credit applies even though the Swiss resident actually collects 27.5 from the French Revenue.

29. The Swiss and United States agreements exclude companies owning more than 20 per cent and 10 per cent respectively of the French company. This compares with a 25 per cent rule in the German agreement.

30. The above treatment omits certain technical complications relating to the flow-through of inter-corporate dividends, the 'precompte' procedure and certain circumstances in which avoir fiscal is disallowed.

31. The position with Germany is particularly

interesting as it shows how harmonisation can be achieved (on portfolio dividends at least) between countries operating Systems B and C. Germany's split rate results in an effective corporation tax burden of 23.44 per cent (ignoring the surcharge) on distri-

buted profits. This system of ameliorating double taxation benefits both residents and non-residents. The position of a French (or other foreign) shareholder receiving income from a German company with profits of 200 would be:

COMPANY	200		
Profits			
Corporation tax			
51% on 46.88	23.91		
15% on 153.12	22.97		
	—		
		46.88	
		—	
			153.12
SHAREHOLDER			
Personal tax rate	20%	40%	60%
Cash dividend	153.12	153.12	153.12
German withholding tax (15%)	22.97	22.97	22.97
Received in France	130.15	130.15	130.15
French tax (on 153.12)	30.62	61.25	91.87
Less credit	22.97	22.97	22.97
Net French tax	7.65	38.28	68.90
Net value of dividend	122.50	91.87	61.25
For comparison			
Net value of French dividend received by a German			
OLD SYSTEM	80	60	40
NEW SYSTEM	120	90	60

GERMANY TO FRANCE	20%	40%	60%
Total German tax	69.85	69.85	69.85
Total French tax	7.65	38.28	68.90
FRANCE TO GERMANY (OLD)	20%	40%	60%
Total French tax	115	115	115
Total German tax	5	25	45
FRANCE TO GERMANY (NEW)	20%	40%	60%
Total French tax	72.5	72.5	72.5
Total German tax	7.5	37.5	67.5

32. The new system gives almost exact parity. (It would be exact if, instead of taking the actual German tax rates, we had assumed the van den Tempel model System B with a 50 per cent/16½ per cent rate structure.) It is also interesting to compare the yields to the two Revenues.

33. There is thus approximate parity from the point of view of all three interested parties.

34. The new French arrangements will, when fully implemented, deal with the criticisms from the point of view of the foreigner investing in France. Except

in the special case of Germany, there is still a bias against French investors buying foreign shares.

Chapter 6. Conclusions and some further problems

1. We have now examined the three main systems. In Chapters 3 and 4 we discussed the economic case against retaining the present System A in the United Kingdom. However, Professor van den Tempel's advocacy of it has some support within EEC, and it

would certainly make tax harmony easier within the Community. It would also be reasonably compatible with non-member countries from the point of view of portfolio investment. The difficulty is on direct investment in non-member high tax countries – the 'overspill problem'. This is far more serious for the United Kingdom than for present member countries.

2. The domestic economic disadvantage of System A are less serious at *lower* rates of personal tax on dividend income. The overspill problem is less serious at *high* rates of corporation tax. It follows, therefore, that we might accept System A in the United Kingdom if we were to increase the rate of corporation tax to about 50 per cent, while at the same time substantially reducing the rate of personal tax, at least as it applies to dividend income. One proposal, quite likely to be accepted in this year's Budget, would be to abolish the distinction between 'earned' and so-called 'unearned' income and introduce a standard rate of tax of 30 per cent. However, really to get away from the economic disadvantages of System A, we might have to go further and reduce the rate of income tax on distributed dividends to something like 15 per cent. We might then finish up with a schedular system of taxes: say 15 per cent on dividends, 30 per cent on earned income and 40 per cent on interest and other investment income which had not suffered a previous layer of tax. Surtax or its equivalent could be levied in addition without destroying the consistency of the systems.

The latter, more sophisticated approach seems to fail on political considerations. Simply to impose a schedular tax of 15 per cent on dividend income, less than the rate on earned income, can be shown on paper to produce an answer consistent both with equity and with other economic targets. It will be misunderstood by the man in the street and is open to misrepresentation. It is almost certainly necessary, therefore, to achieve the same end by the complicated but more easily understood concept of taxing investment income at full rates but giving a special credit for part of the underlying company tax.

3. System B, the split rate, is ruled out because any country adopting it will, given the present structure of double tax agreements, forego a substantial part of the revenue now collected on the income of direct investments made by non-residents. This loss of revenue will benefit foreign governments rather than foreign investors, and will not give a stimulus to the inflow of long-term capital. Neither will there be any compensatory gain in respect of direct investments made by our own companies. Similar considerations would apply to proposals for allowing dividends paid as a deduction from taxable profits.

4. It would, in principle, be possible to make System B compatible with international harmony by a wholesale re-negotiation of double tax agreements and the acceptance, in particular by the United States, of a totally different basis for such agreements. A few years ago, a diplomatic initiative by the United Kingdom might conceivably have achieved this, but in present circumstances it is quite clear that in an internationally interdependent world System B is politically if not technically impossible.

5. That leaves System C, and in the form as originally adopted by France, this produced a strongly nationalistic bias. These criticisms have been accepted by the French who are now actively re-negotiating their double tax agreements to produce what Professor van den Tempel calls System C1. This is the only system which meets the requirements we have so far discussed. It seems reasonably certain that it will be the model for the Common Market and all the arguments we have discussed so far point to its adoption by the United Kingdom.

6. The model system will include a corporation tax with a target rate of 50 per cent. (Given today's levels of Government expenditure, the rate might have to be 60 per cent.) The tax credit given to shareholders could be at half the rate of corporation tax, on the French model. What happened then would depend on decisions taken on personal taxation. There is a lot to be said for a single standard rate on all income whether classed as earned or unearned, and a convenient and acceptable standard rate might be 30 per cent. It may, however, be felt politically desirable to maintain the differential between earned and unearned income and, in this case, the rate might have to be 40 per cent on dividends. We are presuming that, for the time being at least, surtax or its equivalent is retained, although there must surely be substantial modification of the rate structure with an overall top rate at best 60 per cent and at worst 75 per cent.

7. A non-treaty rate of withholding tax equal to our present standard rate is unacceptable to the typical international investor. It proved unacceptable even in the days when it was not a true withholding tax. Conversations with foreign investment advisors suggest that its effect in discouraging even sophisticated investors from investing even in UK growth stocks (where dividends are of minor consideration anyway) was out of proportion to the real penalty. In the absence of a double tax agreement the appropriate rate would probably be 30 per cent, which is in line with rates in other countries. Most existing agreements with advanced industrial countries would, for the time being, remain in force and provide for a 15 per cent rate. Some, mainly with former colonies,

give complete exemption from withholding.

8. Agreements would have to be re-negotiated, particularly with EEC members, on the French model. These would permit residents of certain other countries to reclaim the equivalent of half the corporation tax underlying portfolio dividends received from the United Kingdom. They would normally be subject to a 15 per cent withholding tax on the cash dividend and the credit. The total UK tax burden on dividends would then be as follows:

	50%	60%
Rate of UK corporation tax		
No DTA		
Profits	100	100
Corporation tax	50	60
available for dividend	50	40
withholding tax (30%) on full distribution	15	12
net value of dividend	35	28
Total UK tax as % of original profits	65%	72%
French-Type DTA		
Profits	100	100
Corporation tax	50	60
available for dividend	50	40
Tax credit on dividend	25	30
less 15% on dividend plus credit	11.25	10.50
net claim on UK Revenue	13.75	19.50
Net value of dividend	63.75	59.50
Total UK tax as % of original profit	36.25%	40.50%

9. We now have to consider the effect of this outline system on certain special situations, notably those involving international direct investment. First, inward direct investment. The French extension of the tax credit to non-resident investors only applies to portfolio investors presumed not to be in a position to control the dividend-paying company. (The definition of portfolio investor differs from one double tax agreement to another, but typically excludes holders of more than 20 per cent of a company.)

10. A corporation tax rate of 50 per cent is fairly typical in industrial countries. A United States company keeps \$52 of every \$100 it makes at home. If it invests in a country with an effective tax rate of 60 per cent, it will only keep \$40 and to compensate for this differential will have to look for 30 per cent more profits (\$130 to leave \$52 after tax) from the same expenditure of capital and managerial resources. At present, there is no serious disincentive for investing in the United Kingdom. There are two ways in which we can avoid creating one. One would be to extend the tax credit to direct as well as portfolio investments. This would have the benefit of simplicity

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and of avoiding artificial transactions designed to get an investment on one side of the line or on another. The other would be to grant no credit, but to impose a much lower rate of withholding tax, possibly in this case none at all. This second solution would be neutral as between branches and subsidiaries. The first might induce foreign companies some of which now find it better to trade as a branch, to incorporate their UK activities into a subsidiary. It seems hard to justify on general grounds putting specially low rates

of tax on branch profits. Certainly the combination of a 60 per cent or even a 50 per cent rate of corporation tax with withholding tax would be a serious discouragement. In the case of direct investment, it might be advisable to grant a reduction of withholding tax unilaterally without reference to double tax agreements.

11. A more serious problem concerns United Kingdom companies which derive most of their income from locally taxable sources abroad. At present, full credit relief is given at a corporate level but the relief is not extended to the second level. A typical foreign subsidiary might suffer corporation tax of 50 per cent plus withholding tax and the dividend of 15 per cent, making a total burden of 57½ per cent. This exceeds the rate of corporation tax by 15 percentage points and this tax burden remains unrelieved. From the point of view of the shareholder, this means that, first of all, he pays corporation tax at a high rate in a country which probably takes a smaller tax bite from resident individuals (e.g. USA) or gives some form of relief from economic double taxation (e.g. France or

Canada), then suffers withholding tax which, if he had invested directly in the foreign company, would have been allowable as a credit against UK tax. Because he invested through the intermediary of a UK company, he gets no relief and must pay full personal tax on top of these other two burdens. This problem did not arise to any appreciable extent on our old system of income tax and profits tax.

12. In France, the tax credit is effectively denied to shareholders receiving dividends from French companies which paid the dividends out of profits which had not paid tax in France. The machinery is for the French company to pay a 'precompte' of 33½ per cent on the distribution of (e.g.) foreign-source income. This has the effect of neutralising the credit. This system must be understood in conjunction with the French régime for companies with international income. There is, in general, no question of a tax credit and such companies are simply exempt from tax on income derived from outside France. Overall, this can put them in a more favourable position than British companies in the same circumstances.

12a. Since 1967 French companies have had the option of paying tax on their world-wide income. The option is available in two forms: the first extends only to overseas branch profits while the second includes the consolidated profits of overseas subsidiaries regardless of whether they are distributed or not. It might seem odd at first that French companies might wish voluntarily to surrender the exemption they normally enjoy from French tax on foreign source income. The option has, however, two advantages. One is that it enables foreign losses to be offset against French profits. The second is that where the foreign operations suffer local tax at rates comparable to the French rate it may be better to submit to French tax and claim a credit. This may eliminate the problem of the precompte.

13. Simply to copy the French system of denying a credit would be most unfair to an important category of company – possibly unless there were also a move away from global taxation of corporate profits. The problem is a much more serious one in the United Kingdom than in France as a far more significant proportion of our companies do derive most of their income abroad. The United Kingdom Revenue is understandably reluctant to be in a position of having to refund tax that was never paid to them and one compromise solution might be to permit a credit against tax otherwise due but not to allow any repayment. This would involve the re-introduction of the concept of 'net UK rate'. This, in turn, would make the shares of high yielding low net UK rate companies (mainly in practice, mining

and plantation companies) unattractive to United Kingdom gross funds.

14. Consider the overall tax treatment of distributed profits in four situations:

A: A UK company earning profits in the UK.

B: A UK company earning profits wholly abroad, taxed abroad at 50 per cent.

C: A foreign company earning profits in its own country taxed at 50 per cent. (Withholding tax is presumed to be below the UK personal tax rate and is therefore ignored. It is also assumed that the foreign country grants no 'avoir fiscal'.)

D: As C but with a half 'avoir fiscal' as in France.

15. The position then is as shown in the table overleaf.

16. It will be seen that if the credit were not extended, a United Kingdom investor would be much better off by investing in local companies which gave a credit. If the credit is extended, it would bring the situation into line with the proposed tax agreement in situation (D) and would leave investors in the (C) situation as the only one discriminated against.

17. On the assumption that there is to be no repayment, the credit would have to be *denied* to non-resident shareholders. There is a strong case for making the United Kingdom a favoured location for international holding companies, if this can be done with no loss of revenue. Here, a possible compromise would be to provide in double tax agreements that where the credit was restricted because of the low net UK rate there would be no withholding tax. This would give a free flow-through without involving the United Kingdom Government in any repayments. Another approach might be to adopt the proposal made in Canada and to allow 'withholding tax in' as a credit against 'withholding tax out'.

18. It is sometimes argued, that national, as opposed to private, interest requires that there should be a departure from strict tax neutrality as between domestic and foreign investment. If British capital is invested at home, the country gets the benefit of the *gross* pre-tax return of which about half goes to the company and its shareholders and the balance to the Government for general public purposes. Where the investment is made abroad in a country which imposes taxes at comparable rates, the tax component goes to another government and not to the British Government and is thus lost. A company might be faced with a narrow decision, seen from its point of view, between a domestic and a foreign project. If it opts for the foreign project, the effective yield for the country as a whole is only the net yield, roughly half the gross yield.

19. Against this, if all countries adopted this policy, there would be no net gainers amongst the

1 Present UK System (Corporation tax 42½ per cent, personal tax 38½ per cent no credit).

	A	B	C	D
Profits	100	100	100	100
Foreign Tax	—	50	50	50
UK Corporation Tax	42.5	—	—	—
				50
avoir fiscal:				25
Taxable Dividend	57.5	50	50	75
Tax on Dividend	22.281	19.375	19.375	29.062
NET VALUE OF DIVIDEND	35.219	30.625	30.625	45.938

2 Proposed UK System (Corporation tax 50 per cent, personal tax 40 per cent, half-credit for domestic tax paid only).

	A	B	C	D
Profits	100	100	100	100
Foreign Tax	—	50	50	50
UK Corporation Tax	50	—	—	—
	50	50	50	50
CREDIT	25	—	—	25
Taxable receipt	75	50	50	75
Gross Tax	30	20	20	30
Less Credit	25	—	—	—
Net Tax	5	20	20	30
NET VALUE OF DIVIDEND	45	30	30	45

3 Proposed UK System (As 2 but half-credit given where net UK rate is nil).

	A	B	C	D
Profits	100	100	100	100
Foreign Tax	—	50	50	50
UK Corporation Tax	50	—	—	—
	50	50	50	50
Credit	25	25	—	25
Taxable Receipt	75	75	50	75
Gross Tax	30	30	20	30
Less Credit	25	25	—	—
Net Tax	5	5	20	—
NET VALUE OF DIVIDENDS	45	45	30	45

developed countries at least, and all would lose the benefits of international exchange of capital, skill and ideas. Net importers of capital, which means broadly the underdeveloped countries, would be substantial losers.

20. There are also practical considerations; it cannot be assumed that if the tax system discriminates against certain types of companies, those companies will simply go on generating extra tax revenue for the Government without doing something about it. One solution might be for Section 482 (ex 468) to be repealed permitting companies to transfer their corporate residence outside the United Kingdom. Apart from losing the country the excessive tax

revenue they were trying to exact, this would result in the decline of the United Kingdom as an international business centre and a much more substantial loss of tax that could have been gathered on income from services actually rendered or supplied within the United Kingdom.

21. If Section 482 were not repealed, there would be unfairness between old and new enterprises. No one would set up a new international company in the United Kingdom and the newcomers or those who are already residents of more favoured jurisdictions would have a marked competitive advantage over the United Kingdom based companies. Companies would try to by-pass Section 482 in a number of

ways, perhaps involving a genuine sell-out of assets to foreign companies. Alternatively, companies with mainly non-UK income might seek to merge with domestic companies in such a way that the dividends could be paid out of domestic income while foreign source income provided the cover. This, too, might remove the prospects of collecting the extra tax revenue. The experience of the last few years have shown that mergers for purely tax reasons with no industrial or commercial logic can be financially disastrous and contrary to the public interest.

22. Charities and pension funds which are exempt from tax in the United Kingdom would find it less attractive to invest in mining and commodity companies, but would not otherwise be adversely affected by the adoption of System C₁. They would presumably be equally pleased with a form of split rate System B but would not welcome a variation of System A which compensated for double taxation by imposing generally lower rates of tax on dividends.

23. A reduction in the discrimination between distributed and undistributed profits might make many of the close company provisions unnecessary, but the Revenue might be tempted to take a tougher line on the disallowance of payments to participants. Their grounds might be that tax avoidance possibilities would be greater at a higher rate of corporation tax.

24. On the other hand, it must be appreciated that a high rate of corporation tax could put a heavy burden on small companies. In the case of those close companies which behave in accordance with the assumptions of the architects of the 1965 legislation and are really controlled by one or two working partners with a flexible tax policy, this problem can be solved by various ways by using a different form of organisation or taking all the profits out in the form of directors' fees. There are, however, a great many close companies which are not of this type and where there is a real conflict between the interest of working director/shareholders and the financial backers. Still

worse is the position of third or fourth generation companies where a large part of the shareholdings are held by elderly aunts. Some special provisions will have to be made. These could either take the pattern of a lower rate of corporation tax on the first slice of profits or a partnership option on the United States lines.

25. It is highly desirable that investment trusts and unit trusts should be fiscally transparent regardless of the residence of the shareholder or of the companies invested in. This somewhat technical subject really requires a separate paper. There seems to be no insuperable difficulties in reconciling System C₁ with a fiscally transparent régime for investment trusts.

26. To conclude, therefore, System C₁ on the French model with a tax credit extended to domestic and foreign shareholders seems the most acceptable for the United Kingdom, especially if it is adopted as a common policy by EEC. System A (our present system) has the merit of simplicity: its worst economic distortions would be removed if the balance of the tax was altered by raising the level of corporation tax and substantially reducing the schedule of personal tax rates. The choice of an appropriate system of corporation tax may depend, therefore, on the choice of personal tax structure – a subject on which the Budget may well have something to say. Tax systems tend to founder on detail rather than on principle. The apparent simplicity and elegance of the new corporation tax outlined by Mr Callaghan in November 1964 is hardly recognisable in the complex Finance Acts to which it gave birth. The proposals made in this Paper have been tested out from several points of view – but there are certainly aspects which have not been considered and special cases which have been overlooked. The time for those affected to make their views known is now – not after a Finance Bill is published and has to be fitted into an overcrowded Parliamentary timetable.

Appendix I

Extract¹ from the report 'Corporation Tax and Individual Income Tax in the European Communities' by Professor Dr A. J. van den Tempel

Introduction

In view of the development and the interlacing of the stock markets, the rapporteur has given advice on the problem of the coexistence of corporation taxes and taxes on the income of shareholders.

The economic and social consequences which the

various possible regulations may have, are to be considered, not only at home, but also in respect of the relations between the Member-States and where it concerns the relations with third countries.

The following systems have been discussed in detail:

A: The classic system (Luxembourg, The Netherlands, The United Kingdom): the distributed profit of a company is not taxed in a different way than the retained profit, the dividend received by a share-

¹ This is Professor van den Tempel's own summary of the full report. The quotations in the main body of this paper are from an unofficial English translation of the full report.

holder is not taxed in a different way than any other income.

B: The system of a differentiated corporation tax rate (Federal German Republic): the distributed profit of the company is taxed at a lower rate than the retained profit, the dividend received by the shareholder is not taxed in a different way than any other income.

C: The credit system (Belgium, France): the distributed profit of the company is not taxed in a different way than the retained profit, whereas with regard to the shareholder, part of the corporation tax imposed on the distributed profit, is credited against the tax on the dividend.

Italy, now that a big tax reform is still being prepared, has been left out of consideration.

A few summarily discussed systems

The systems D, E and F, hereafter mentioned, have been summarily discussed. None of these systems form an integral part of the tax systems of the Six or of the United Kingdom. In the opinion of the rapporteur they deserve no further consideration by the European Community. At most the question will arise, whether and to what extent elements of these systems, incidentally appearing in an existing legislation, can be retained during the period of transition to some harmonised system.

System D (total avoidance of economic double taxation on dividends; Sections 113-114).

Double taxation can be avoided by one of two methods:

(1) No imposition of corporation tax on the distributed profit, but exclusively on the retained profit; this is the extreme form of the West German system. This system exists in Greece.

(2) Imposition of corporation tax on the entire profit with a full credit for that part of it that falls on the distributed profit, against the income tax due on the dividend. This is the extreme form of the French system of credit. This system exists in Ireland.²

The purpose of both methods is to integrate the corporation tax on the distributed profit with the individual income tax.

Because the methods of system D are extreme forms of the systems B and C, the consequences of these latter systems, whether good or bad (see hereafter) are more extreme in the system D.

System E (fiscal transparency; 'transparence fiscale'; Sections 115-122).

² This is not strictly correct. The Irish system resembles the UK system immediately pre-1965 in including an element of Corporation Profits Tax, which is not creditable.

In this system it is pretended as though the company does not exist at all, neither for the retained profit, nor for the distributed profit. The shareholder does not only pay income tax on his dividend, but also on his share in the retained profit. The integration is therefore complete. The well-known Stützel-Plan is based on this method.

This system entirely builds on the concept adhered to at earlier times, that a share company has no existence of its own and is just an enterprise of the joint shareholders. These are considered to enjoy from the enterprise not only the distributed profit, but also the retained profit which they leave voluntarily at the disposal of the company.

This system replaces the proportionate corporation tax by the individual income tax which has been adapted to the financial capacity of the shareholder. Thus the holding of shares becomes more attractive for the small saver, whereas the so-called 'growth-stocks' which distribute little, lose their attraction, especially for rich taxpayers. The system would encourage that the group of shareholders becomes bigger and that within this group a somewhat more even distribution of property would be achieved.

The basic idea of this system is not in accordance with reality. Particularly the big open share company has an existence of its own, on which the shareholder can practically not exercise any influence. This also applies to the decisions on the distribution and retaining of profits. In system E the shareholder is charged for amounts of retained profit, of which it is uncertain that he will ever enjoy them (Section 120).

Furthermore, this system is hardly practicable for domestic companies. For the computation of the income, both the shareholder and the tax administration must not only know the dividend, but also the share in the retained profit which is attributed to the shareholder. All difficulties (depreciations, inventory valuation, etc.), which characterise the profit computation of the company, come up for each shareholder separately and later revisions of the computation of profits are leading to manifold corrections of the assessments for the individual income tax. This being already difficult when a shareholder has a share in a domestic company, it becomes impossible when it concerns a share, direct or indirect, in a foreign company, because then the data necessary for the attribution of the profit (to be computed by inland standards) are lacking (Sections 121-122).

System F (deduction of primary dividend; Sections 123 and following).

The basic idea of this system is that the profit, in the sense of the common parlance, also comprises an element of cost, viz. the interest on the own capital

used in the enterprise. This encourages shifting of taxation. In this conception only the surplus profit (the 'rent') may be taxed; exemption of a primary interest on the own capital would be a contribution to fiscal neutrality, because financing with equity capital or with loan capital are equally treated, just as highly capitalised industries on the one hand and industries requiring a great labour force on the other hand.

The application of system F would mean, however, that the tax administration would annually have to determine the real capital including the hidden reserves of all companies. This is impossible. It is true that some Member-States levy a net worth tax on entities, but its low rate permits to work with a much greater uncertainty factor than would be acceptable in system F, where the interest is much larger.

In order to obviate this drawback, it is in some cases of practical application of system F considered sufficient to allow as a deduction a certain percentage, not of the entire net worth, but of the paid-in capital. This, however, is a stimulus to capital increase and to the conversion of reserves to formal capital. In this case the corporation tax will particularly continue to weigh on industries with a high profitability which do not dispose of reserves capable of incorporation in the capital. We can then no longer speak of an equal incidence in the corporate sector.

If the assumption mentioned above concerning the shifting is correct, the system will lead to lower profits before taxation. An increase of the distributed profit is not to be expected.

It is not to be predicted whether system F will lead to a spreading of the holding of shares.

The difficulties connected with system F, when dividends and profits are paid across the border, look like those of system B; see hereunder. An attendant effect might be that foreigners will transfer their business and other capital to a country with system F, in a company established there which is sufficiently amply capitalised to remain free of corporation tax.

Belgium knows deduction of primary dividend as a temporarily stimulating measure for new issues of capital; dividend on capital in money contributed in 1967-69 is exempted to a maximum of 5 per cent.

The systems A, B and C

General

The rapporteur dedicates half of his report to a comparison of the consequences of the structural differences of the systems A, B and C at home. His starting-point here is that the effect of the systems is compared with elimination of the budgetary aspect. This latter is achieved by starting in each of the

systems from the same yield of corporation tax together with the income tax on the dividends (Sections 7-9). The question of the level of the direct taxes in general and also the question of the place which the taxation of corporate profits has to the question of the place which the taxation of corporate profits has to occupy here, are eliminated in this way. The figures of the examples in the Sections 19-22 have therefore been chosen in such a way that practically the condition of equal burden of taxation with different tax structure has been satisfied.

In the domestic sphere, the rapporteur remarks, the effects of system B and that of system C are presumably pretty much alike, whereby a reservation must be made for the period shortly after the introduction of the alteration of the system (Section 154). System C, however, proves to have a greater flexibility, which can be explained from the fact that the relief from economic double taxation is not yet granted at the moment of the corporation tax, but only later, when it appears that the dividend is taxed (again). Because of that, among other things, it leaves more scope for conducting a policy of dividend equalisation by the companies.

Both system B and system C are considerably more complicated than system A. All three systems have the difficulties of the computation of taxable profits, in the systems B and C in addition provisions are necessary to determine in which cases the economic double tax is moderated. In system B the concept of distribution stands in the centre, whereby complications arise if the dividend is enjoyed by entities. In system C it must be avoided that diverging credit rights occur for the shareholders, for which an additional levy can be necessary on distributions from profit which has not been subject to corporation tax (the French 'précompte', Section 71).

Furthermore, this part of the report deals with the shifting of tax, the influence of the systems on the dividend quote, on the choice of the legal form of the enterprise and on the choice of the means of financing, the anti-cyclical effects, the influence on the distribution of prosperity and the socio-psychological effects.

A few conclusions are brought forward here.

The shifting of tax (Sections 29-36)

The rapporteur reminds us that in the last years our ideas concerning the shifting process of the taxes have thoroughly changed. The certainty of former times that the problem of shifting did not play a part in taxes on income and profit, has made way for uncertainty under what circumstances and to what extent shifting of tax takes place. The only thing is that certain factors can be established which *pretty* certain stimulate or prevent the shifting; a quantitative

determination of the influence of these factors is, now in any case, not yet possible.

The rapporteur gives special consideration to the question of whether a difference in shifting arises between corporation tax on retained profit and corporation tax which, without coming into account for a credit against individual income tax, is imposed on distributed profit. The rapporteur calculates that, irrespective of the retainings and distribution quota, the following percentages must be available for the paying of taxes ('tax quota'), whereby he proceeds from the chosen rates in Chapter II, Section 19:

	Tax quota in		
	system A	system B	system C
on retainings	66½%	100%	100%
on distributions	66½%	33½%	33½%

Assuming that the companies are compelled to make distributions of profit to a certain extent in order to meet the expectations of the capital market, then those distributions could be considered as business expenses which can lead to shifting. That shifting would naturally be strongest in system A, in which the tax quota on distributions is highest. The rapporteur, however, points out that the yield as criterion for the appreciation of shares is replaced to an increasing degree by the profitability and the retention of profits (growth stocks). This development invalidates the above-mentioned premise.

The circumstance that in system C the company is to a larger degree taxed in the form of the proportional corporation tax, could lead to the conclusion that in this system there is a greater shifting than in the systems A and B. The rapporteur, however, stresses the great amount of uncertainty in this field.

Influence on the dividend quota (Sections 37-46)

In the opinion of the rapporteur the systems B and C, in any case on a long term, will lead to a higher dividend quota than system A. That effect, however, will remain limited to a usually not wide margin, the size of which is notably dependent on the proportion of the investment plans to the investment capacity. The question whether a fiscal influence of the dividend quota is desirable will be answered differently. The attention is drawn to the fact that in case of a constant increase of charges which occurs in renouncing of self-financing, the interests of the employees are also affected. Furthermore, it is of significance that the extra dividend for the greater part will be used in the consumptive sphere. In the opinion of the rapporteur it is improbable that from a point of view of economic growth the decrease in the volume of the savings is

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compensated by a better allocation of the saved part of the extra dividend. The judgment is dependent on the fact whether the total of these effects is positively valued as structural consequence.

Improvement of the distribution of property (Sections 58-62)

Here the rapporteur raises the question whether the systems A, B and C also differ to such an extent, that one more than the other contributes to an increase of property . . . among the lower classes. At the present moment the holding of shares by the working people practically does not exist.

It is established at the outset that no difference in effect arises, when the dividend quota is not influenced by the system. As far as in the systems B and C the dividend quota is higher than in system A, the taxpayer with a low income will profit more by this than the shareholder who comes under a high progressive scale. Under the systems B and C the holding of shares would therefore be more attractive for the 'small investor', for he could *shift his way of saving* from savings accounts and debentures to shares. But this is no better distribution of property. The chance that the *thriftiness* of the people with a lower income will also *become greater* is light; existing spending habits are difficult to be changed and increase of prosperity, precisely among the least prosperous people, is directed to higher consumption rather than to more savings.

Socio-psychological effects (Sections 63-65)

Starting from the principle that categories of cases that are socially close to each other should be treated as equally as possible, the following comparisons can be made:

The middle class trader³ will compare the marginal burden of the income tax paid by him, which restricts his possibility for renewal and expansion, with the tax on the retained profit paid by his competitor, the share company.

The non-shareholder, particularly in system C, will compare the tax treatment of dividends received in cash, on which little or no tax has to be paid, or on which even money is refunded, with that of all other forms of income. He could consider this as a fiscal privilege.

The question whether shareholders in general experience as a not to be justified double burden the existence of the corporation tax on the profit side by side with income tax on the dividend, is differently thought of. The shareholders of private companies

³ This is a translation of a Dutch expression which has a different meaning from English usage. Professor van den Tempel is referring to unincorporated small shopkeepers.

could have this feeling; the systems B and C, however, generally bring the private company fiscally in a worse position (so that the need for special fiscal provisions for the private company is greater under these systems than under system A, sections 46 and 48). The ordinary investor, on the contrary, is not personally concerned in the levying of the corporation tax. Only when this should be altered, he will calculate, whether the value of his property is affected.

International aspects of the systems A, B and C and the Common Market

General (sections 74-75)

The structure of the systems is decisive for the application to cases with an international element.

In system A the taxation of the entity is performed independently of the taxation of the shareholder. For the imposition of the corporation tax it does not matter whether the shareholders are residents or non-residents. For the imposition of the income tax of the shareholders it does not matter whether the profit, from which their dividend accrues, has been made by a domestic or a foreign company. Double taxation must be avoided by unilateral measures or by tax treaties.

In the systems B and C, on the contrary, the legislator has brought the tax on the profit and the tax on the dividends in connection with each other, in order to moderate the economic double taxation. In system B the corporation tax on distributions is reduced in view of the income tax on dividends. In system C the income tax is relieved by considering part of the corporation tax as advance levy. When one of the two phases of this process plays abroad, then the question arises, what are the consequences of this for the other phase? These consequences are expressed in 'border adjustments', in the imposition or refunds of tax in respect of dividends crossing national borders.

In this respect the countries of the European Community occupy a special position. The objectives of the Common Market impose the obligation on them to aim at a regulation which makes it possible to treat those investments which are made across the inner boundaries between the Member-States, fiscally in the same way as similar domestic investments.

By equality of fiscal treatment is not meant here that on domestic investments an equal tax amount is due as on analogous investments made across the national borders. The existing differences between the national provisions concerning the tax base (profit, income), the rates and the implementation of the taxing provisions now lead inevitably to tax differences. Those differences can only vanish by

harmonisation on the items mentioned, a problem which is not under discussion here. A *system* can stand the test of equal fiscal treatment, if, with the same tax base, rates and implementation, it: is neutral with regard to investment by residents at home or abroad, is neutral with regard to investment by residents or by non-residents.

System A

From the general remarks mentioned hereabove, it follows that system A, also when it has to be applied to an international element, offers little difficulties and guarantees an equal fiscal treatment.

System B

Characteristic for system B is, that the relief is already granted at the moment of distribution by the company. In principle the relief is also applicable to shareholders abroad. This consequence can be contrary to contents and purpose of the system, such as it is applied at home. Thus, when the dividend is received by a foreign parent company, the revenue department of the country with system B cannot judge whether and to what extent, the dividend is passed on to investors. Consequently a fiscal advantage threatens to arise in favour of foreign parent companies which do not pass on the dividend, but remain beyond the reach of the 'Nachsteuer' which in that case is due at home. That advantage can only be counteracted 'à forfait', notably by means of a (general) taxation on participation dividends which go abroad. The level of such a forfait can only roughly be determined, viz. on the basis of an estimation of the degree in which participation dividends on average come into the hands of investors. The regulation 'à forfait' can therefore at most bring about a rough equilibrium between the tax *régimes* for dividends and profits remaining at home and for those going abroad. If, however, individual *cases* are compared, then it appears that the requirement of equal treatment of identical cases is not satisfied; for a good functioning of the Common Market and from a point of view of prevention of competition disturbances and other distortions, an equal treatment of identical cases is perhaps more important than a rough equilibrium of the régimes (Sections 88-89). Besides, in negotiations it has appeared that the incorporation of such an additional levy in a tax treaty, with deviation from the principle of reciprocity, meets with opposition (Section 90).

Difficulties resulting from the same root cause, are to be noticed in domestic permanent establishments of foreign companies and in the case of companies which are owned by persons living in tax haven countries.

System C

Characteristic for this system is, that the corporation tax is always fully levied. The moderation of the economic double taxation only happens at a later stage. That technique makes system C more flexible than system B. For the cases with an international element, divergent regulations are therefore conceivable:

C I Equality for resident and non-resident investors.

This means that the latter also obtain a right to a credit, on even terms with residents. This starting-point is in accordance with system B, the technique differs (sections 97-101); for the greater part the imperfections of system B are here also noticeable.

C II Equality for investments at home and abroad.

This variant proves to present insurmountable implementation difficulties (sections 102-103).

C III Rejection of relief for non-resident investors and for investments abroad (sections 104-111).

The French system comes under variant C III.⁴ It restricts the moderation of the economic double taxation on dividends to the strictly domestic cases. From a point of view of the international movement of capital and the relations between the stock markets, strong discriminatory effects proceed from the French legislation. The exclusion of foreign profit and foreign shares stimulates to investment of French capital in France. The exclusion of non-residents restrains investments in France in the form of share capital by foreigners. The French system has therefore also as a consequence a certain isolation of the national capital market and the equality of fiscal treatment is lacking.

The French government has shown its willingness to enter into negotiations for the removal of the fiscal discrimination of foreigners, but exclusively in the relation with other Member - States of the European

⁴ Since this report was written the French system has, of course, moved in the direction of variant C I.

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Communities. With the Federal German Republic such negotiations are said to have taken place; the result has not been published.⁵ Such bilateral agreements have their drawbacks. First of all such a regulation can be an impediment on the way to the further removal of distortions. Secondly, even if by a multilateral agreement, the other Member-States would also be included in that regulation, the discriminatory effect of the French system with regard to third countries, would still remain to exist and the remaining Member-States would therefore be included in the autarchic tendencies of the French system.

Conclusions

These are drawn under reservation of two kinds. With reference to the socio-economic consequences of the various systems there are many uncertainties. Furthermore, when attaching significance to the expected consequences, one enters into the territory of subjective valuations, originating from a distinct vision on the society and on the possibilities and desirabilities of the further development.

It is the opinion of the rapporteur that, if the domestic and the international aspects of the systems together are reviewed, the conclusion seems to be justifiable, that system A is the most likely to be accepted as harmonised system in the European Communities.

During the transitional period to a harmonised system, it would be desirable, that the Belgian and French system, both of the type C III, are changed into systems of type C I.

To the regulations 'à forfait' in the systems B and C, with reference to participation dividends and profit of permanent establishments, such a substance should be given during the transitional period to a harmonised system, that the inequality of fiscal treatment in the domestic sphere on the one hand and that with an international element on the other hand, is restricted as much as possible.

⁵ In the meanwhile this agreement has been concluded.

Appendix II**Article 10 of the Double Taxation Agreement between Germany and Thailand**

(Emphasis added by the author)

- (1) Dividends paid by a company which is a resident of a Contracting State to a resident of the other Contracting State may be taxed in that other State.
- (2) However such dividends may be taxed in the Contracting State of which the company paying the dividends is a resident, but

(a) the *Thai* tax shall not exceed:

- i. 20 per cent of the gross amount of the dividends if the company paying the dividends engages in an industrial undertaking or if the recipient of the dividends is a company which is a resident of the Federal Republic *owning at least 25 per cent of the voting shares of the company paying the*

dividends;

2. 15 per cent of the gross amount of the dividends if the company paying the dividends engages in an industrial undertaking and the recipient of the dividends is a company which is a resident of the Federal Republic owning at least 25 per cent of the voting shares of the former company;

(b) the German tax shall not exceed:

1. 20 per cent of the gross amount of the dividend, unless sub-paragraph 2 applies;

2. 15 per cent of the gross amount of the dividends, if the recipient of the dividends is a company which is a resident of Thailand *owning at least 25 per cent* of the voting shares of the company paying the dividends.

3. Notwithstanding the provisions of paragraph 2 the tax of a Contracting State on dividends paid by a company which is a resident of that State may exceed the rates provided for in that paragraph, but shall not exceed 25 per cent of the gross amount of the dividends, if

(a) the *corporation tax of that State on distributed profits is lower than that on undistributed profits and the difference between those two rates is 20 percentage points or more*, and

(b) such dividends are paid by a company which is a resident of that State to a company resident of the other State and which *owns at least 25 per cent* of the voting shares of the first-mentioned company.

Appendix III

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Earnings per Share: A Measure of Sustainable Growth

Geoffrey Holmes, FCA

Introduction

ED4,¹ the latest exposure draft published by the Accounting Standards Steering Committee, represents a new departure. Until now the Accounting Standards Steering Committee has concerned itself purely with the disclosure of accounting data and the bases on which accounts have been prepared: in ED4 the Committee has turned its attention to statistical information.

While basically simple, the concept of earnings per share is relatively new in the United Kingdom. ED4 devotes one page to explaining the concept, one page to the proposed standard accounting practice, and twenty-three pages to detailed computations. In relation to earnings per share it thus answers the questions *What? When? and Where?*

Earnings per share are primarily an investment yardstick, and there is one obvious omission from ED4: although ED4 seeks to make earnings per share data mandatory as regards quoted companies, it does not really explain *Why*.

ED4 is concerned with how earnings per share data should be computed and presented; these problems will not, therefore, concern me here.² My interest is confined to the questions: Why are companies to be required to state earnings per share? What use are they to anyone?

The historical background

In the United States 'earnings per share' data are used in evaluating the past operating performance of a

business, in forming an opinion as to its potential, and in making investment decisions. They are commonly presented in prospectuses, proxy material and reports to shareholders³ and have been for many years. Interest in earnings per share and price/earnings ratios is growing in this country, but at present nothing like the importance is placed on earnings per share data here as in the United States.

There are two main reasons for this:

1. Differences in the tax system

In many other countries it has always been the case that:

$$\text{Earnings} - \frac{\text{Ordinary dividends paid (gross)}}{\text{Ordinary dividends retained}} = \text{Profits retained} \quad (1)$$

or, to express this relationship another way:

$$\text{Earnings} = \text{Profits retained} + \frac{\text{Ordinary dividends paid (gross)}}{\text{Ordinary dividends paid (gross)}} \quad (2)$$

but because of the taxation system this would not work in the United Kingdom. As is shown in Illustration 1, until the introduction of corporation tax in 1965: 'earnings' varied with the rate of dividend.⁴

2. No par value shares

In parts of the United States where shares of no par value are permitted dividends are inevitably stated on a per share basis; what could be more natural than that earnings should be similarly stated in order that the dividend cover may be immediately obvious? For:

$$\frac{\text{earnings per share}}{\text{dividend per share}} = \text{cover} \quad (3)$$

In the absence of shares of no par value in this country dividends are generally expressed as a

¹ Proposed statement of standard accounting practice: *Earnings per share*. Accounting Standards Steering Committee of the Institute of Chartered Accountants in England and Wales, in association with the Institute of Chartered Accountants of Scotland and the Institute of Chartered Accountants in Ireland; London February 1971. Published in full in *Accountancy* April 1971, pages 219-30.

² See, however, 'EPS With Everything?' *Accountancy* April 1971, pages 172-3.

³ *Earnings per Share*, APB Opinion 15, Accounting Principles Board, New York, May 1969, page 217.

⁴ See *Recent Tax Changes and the Investing Shareholder - I*, by Geoffrey Holmes, *Accountancy* November 1966, pages 798-799.

Illustration 1

Share capital: 1,000,000 ordinary shares of £0.50 each = £500,000.
 200,000 5 per cent preference shares of £1 each = £200,000.
 Profit before tax £100,000.

POSITION BEFORE 1965:

Income tax (say) 40 per cent; profits tax 15 per cent.

	<i>(i) Ordinary Dividend 3 per cent</i>	<i>(ii) Ordinary Dividend 13 per cent</i>
	£ £	£ £
	100,000	100,000
Profit before tax		
<i>Less</i> : Income tax	40,000	40,000
Profits tax	15,000	15,000
	<hr/>	<hr/>
	55,000	55,000
Profits after tax		
<i>Less</i> : Preference dividend (net)	45,000	45,000
Ordinary dividend (net)	6,000	6,000
	<hr/>	<hr/>
	9,000	39,000
	<hr/>	<hr/>
	15,000	45,000
Retained	£30,000	—
	<hr/>	<hr/>
Earnings:		
Profits retained	£30,000	£0
Ordinary dividend (gross)		
i.e. net dividend $\times \frac{100}{100-40}$:	15,000	65,000
	<hr/>	<hr/>
	£45,000	£65,000
	<hr/>	<hr/>
Earnings per share	$\frac{£45,000}{1 \text{ million}} = 4.5p$	$\frac{£65,000}{1 \text{ million}} = 6.5p$

POSITION TODAY:

Corporation tax: 42½ per cent

	<i>(i) Ordinary Dividend 3 per cent</i>	<i>(ii) Ordinary Dividend 13 per cent</i>
	£ £	£ £
	100,000	100,000
Profit before tax		
<i>Less</i> : Corporation tax (42½ per cent)	42,500	42,500
	<hr/>	<hr/>
Profit after tax	57,500	57,500
<i>Less</i> : Preference dividend (gross)	10,000	10,000
	<hr/>	<hr/>
Earnings (= 'available for ordinary')	47,500	47,500
Ordinary dividend (gross)	15,000	65,000
	<hr/>	<hr/>
Retained	£32,500	£17,500
	<hr/>	<hr/>
Earnings per share	$\frac{£47,500}{1 \text{ million}} = 4.75p$	$\frac{£47,500}{1 \text{ million}} = 4.75p$

percentage of the par value of the share, and until now there has been no great pressure towards the production of earnings per share data.

But the attention drawn to earnings per share by the publication of the new draft statement of accounting practice, and in particular the view expressed in paragraph 1.4 of that statement, that 'the annual accounts of a quoted company should therefore disclose earnings per share', is likely to bring a rapid change in this position.

The basic concept

Essentially the concept of earnings per share is a simple one. Unless there are changes in the capital structure:

$$\text{earnings per share} = \frac{\text{total amount earned for the equity share capital in the financial period}^5}{\text{number of shares in issue and ranking for dividend during that period}} \quad (4)$$

Where a company is expanding by acquiring other companies by paying for them in shares, debentures or unsecured loan stocks, turnover and profit after tax are poor measures of progress as it affects the individual investor, as they give no indication of the extent to which his proportionate interest has been watered down by acquisition issues or to which the gearing has been changed. Earnings per share are a much better measure.

Illustration 2

On 1 January 1970 Wallace Ltd acquired the entire issued capital of Our Alfred Ltd for £30 million.

At 31 December 1969 Wallace Ltd had in issue: 10,000,000 £1 ordinary shares (which were standing at £5) and £5,000,000 10 per cent unsecured loan stock (quoted at par); and had revenue reserves of £32 million.

Table 1 shows the profit and loss accounts of Wallace Ltd for 1969 and 1970; Our Alfred for 1970; and the consolidated profit and loss account for 1970; on the basis that the consideration for the acquisition of Our Alfred Ltd was: (a) £30 million 10 per cent unsecured loan stock; and (b) 6 million £1 ordinary shares. Our Alfred Ltd did not pay a dividend in 1970.

Diluted Earnings and Common Stock Equivalents

Accounting Research Bulletin 49⁶ introduced the

⁵ Normally taken to be the consolidated profit of the year after tax, minority interests and preference dividends but before extraordinary items (net of tax and minority interests).

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concept that a security other than common stock could be the substantial equivalent of common stock, and should therefore enter into the computation of earnings per share, but until APB Opinion 9 was issued the principle was seldom followed. The idea was extended still further by APB Opinion 15 – an opinion which occupies sixty-two pages and has raised countless problems of interpretation.⁷

Circumstances in this country do not exactly parallel those in the United States and ED4 differs very considerably in detail from APB Opinion 15. A main reason for this is that an American company can purchase its own shares, whereas a British company cannot lawfully do this. In many ways ED4 provides a simpler basis of compilation than APB Opinion 15 but it still takes twenty-three pages to set out the detailed rules and calculations involved.

Despite – even, perhaps, partly as a consequence of – all this attention to technical detail to the problems raised by such things as convertible loan stocks and warrants many accountants on both sides of the Atlantic are suspicious of the emphasis on earnings per share, in the belief that no one financial statistic can possibly represent all aspects either of an investment or of the company in which it is made.

There is obviously a good deal of truth in this. Why, then, is so much attention paid to earnings per share?

Earnings per share and the investor

Earnings per share interest the equity investor for two reasons:

1. Earnings are either distributed or retained: those which are distributed (dividends) represent the ordinary shareholders' present income; those which are retained are ploughed back to provide future growth;
2. Share prices are to a large extent a reflection of growth in earnings per share, past, present and prospective.

Earnings per share are thus a key factor in the investment situation.

To see why, it is necessary to consider the problem of investment values. Let us look first of all at a fixed interest stock: an investor who demands 9 per cent return from such a stock is offered an irredeemable government stock bearing a 2½ per cent coupon. How much should he pay for it?

For the sake of simplicity let us assume that inter-

⁶ *Earnings per Share*, Accounting Research Bulletin 49.

⁷ Many of the questions raised in correspondence with the Board have been published in 'Computing Earnings per Share: Unofficial Accounting Interpretations of APB Opinion 15'; the American Institute of Certified Public Accountants, New York, 1970.

est is payable annually, the first payment receivable one year hence. Working in terms of £100 nominal of stock, and applying present value theory, what he requires to know (i.e. the sum he should pay) is the present value of a series of payments of £2.50 receivable in perpetuity, discounted at 9 per cent, namely:

$$\frac{\text{£2.50}}{(1+0.09)} + \frac{\text{£2.50}}{(1+0.09)^2} + \frac{\text{£2.50}}{(1+0.09)^3} + \cdots \frac{\text{£2.50}}{(1+0.09)^n}$$

It can be shown that the sum of this series is:⁸

* In general terms, if r is the rate of interest demanded expressed as a decimal, the present value of I received annually in perpetuity is: $\frac{I}{r}$

Table 1

Consideration: £30 million 10% unsecured loan stock

	Wallace Ltd 1969 £m	Wallace Ltd 1970 £m	Our Alfred Ltd 1970 £m	Wallace Group 1970 £m
Sales	45.000	42.000	39.000	81.000
Profit before interest and tax	4.500	4.000	5.000	9.000
Interest	0.500	3.500	0	3.500
Profit before tax	4.000	0.500	5.000	5.500
Corporation tax (taken as 40%)	1.600	0.200	2.000	2.200
Profit after tax (= 'earnings')	2.400	0.300	3.000	3.300
Number of ordinary shares	10m			10m
Increase in sales (1970/1969): $\frac{\text{£81m}}{\text{£45m}} = 1.8$ times				
Increase in profit before interest and tax: $\frac{\text{£9m}}{\text{£4.5m}} = 2.0$ times				
Increase in profit after tax: $\frac{\text{£3.3m}}{\text{£2.4m}} = 1.375$ times				
Earnings per share: 1969 24p; 1970 33p				
Increase in earnings per share: $\frac{33p}{24p} = 1.375$ times				

Consideration: 8 million £1 ordinary shares

	Wallace Ltd 1969 £m	Wallace Ltd 1970 £m	Our Alfred Ltd 1970 £m	Wallace Group 1970 £m
Sales	45.000	42.000	39.000	81.000
Profit before interest and tax	4.500	4.000	5.000	9.000
Interest	0.500	0.500	0	0.500
Profit before tax	4.000	3.500	5.000	8.500
Corporation tax (40%)	1.600	1.400	2.000	3.400
Profit after tax (= 'earnings')	2.400	2.100	3.000	5.100
Number of ordinary shares	10m			16m
Increase in sales (1970/1969): $\frac{\text{£81m}}{\text{£45m}} = 1.8$ times				
Increase in profit before interest and tax: $\frac{\text{£9m}}{\text{£4.5m}} = 2.0$ times				
Increase in profit after tax: $\frac{\text{£5.1m}}{\text{£2.4m}} = 2.125$ times				
Earnings per share: 1969 24p; 1970 31.7p				
Increase in earnings per share: 1.328 times				

$$\frac{\text{£}2.50}{\text{£}0.09} = \text{£}27.78$$

Most government stocks are not irredeemable, and the investor is concerned with the value not of a series of interest payments receivable in perpetuity but with a series covering a term of years, and the receipt of a capital sum at the end of that period.

Let us imagine he is offered a security with a 3 per cent coupon having a life of ten years, and redeemable at par at the end of that period. In present value terms the amount he should be prepared to pay for the investment (per £100 of stock) if his required return is 9 per cent gross is:

the present value (at 9 per cent) of an annuity of £3 for ten years, first payment one year hence¹⁰
pass

$$\begin{aligned} \text{the present value (at 9 per cent) of £100 receivable} \\ \text{ten years hence}^{11} \\ = \text{£}3 \times 6.4177 + \text{£}100 \times 0.4224 \\ = \text{£}19.25 + \text{£}42.24 \\ = \text{£}61.49 \end{aligned}$$

Value of an Equity Investment: the present value of the future dividend stream

The same principle can be applied to equity investments. If an investor can obtain a high level of security by investing in a government stock it is unreasonable to expect him to accept a smaller return from a much less secure equity investment. Let us imagine, therefore, that to take account of the risk factor he seeks a return of 10 per cent gross. He is offered an equity investment which at present pays a dividend of 5p per £1 share; what would it be reasonable for him to pay for it?

The present value of a dividend of 5p per annum in perpetuity, discounting at 10 per cent, is:

$$\frac{\text{£}5}{0.10} = 50\text{p};$$

i.e. he should pay 50p per share.

If the company's payout ratio is 75 per cent, i.e. the dividend is covered 1.33 times, this represents a P/E ratio of:¹²

$$\frac{50}{1.33 \times 5} = 6\frac{2}{3}.$$

In general terms, unless the income from the investment is expected to grow, the maximum the investor should be willing to pay per share is:¹³

$$\frac{D}{r} \quad (5)$$

where D = the annual dividend per share; and
r = the discount rate, i.e. the rate required by the investor, expressed as a decimal.

This is equivalent to a P/D ratio of 1/r; and if C is the cover the P/E ratio for an investment with no income growth should not exceed:

$$\frac{1}{rC} \quad (6)$$

Dividend growth as a basis for Share Prices of Growth Stocks

Post-war experience suggests that earnings and equity dividends are not constant but tend to grow. Investors are prepared to pay for this growth, and this has given rise to the phenomenon known as the 'reverse yield gap'; this is a situation in which the dividend yield on equities is less than that on fixed interest securities – in some cases only one-fifth, or even one-tenth, that on gilts – despite the higher risks associated with equity investments.

Investment in an equity share to return a lower dividend yield than could have been received on gilt-edged is only logically defensible if dividends are expected to grow, or the market value of the investment is expected to increase, or both.

To an investor who could obtain a return of r on a fixed interest security offering a similar risk, the present value (V) of an investment currently paying a dividend (D), which is expected to grow by g per annum for n years and then remain constant, is (where g and r are decimal percentages):

$$\begin{aligned} V = D \left[\frac{(1+g)}{(1+r)} + \frac{(1+g)^2}{(1+r)^2} + \frac{(1+g)^3}{(1+r)^3} + \frac{(1+g)^4}{(1+r)^4} \dots \right. \\ \left. \frac{(1+g)^n}{(1+r)^n} + \frac{(1+g)^{n+1}}{r} - \left\{ \frac{(1+g)^n}{(1+r)} + \frac{(1+g)^{n+1}}{(1+r)^2} \right. \right. \\ \left. \left. + \frac{(1+g)^{n+2}}{(1+r)^3} + \frac{(1+g)^{n+3}}{(1+r)^4} \dots \frac{(1+g)^n}{(1+r)^n} \right\} \right] \quad (7) \end{aligned}$$

Similarly the P/D ratio represents
market price per share
dividend per share

The P/D ratio, while a useful concept, is little used in practice so far. P/D ratio \times cover = P/E ratio.

¹² This may or may not be the market price, which represents the price at which marginal sellers/buyers are prepared to do business.

¹⁰ The problem of taxation will be discussed later.

¹¹ A suitable table is 'The present value of an annuity of r', *Accountancy*, Ready Reference Card 11, P. D. Reynolds, CA Dip MA.

¹² A suitable table is 'Present value factors for discounted cash flow calculations', *Accountancy*, Ready Reference Card 3, P. D. Reynolds, CA Dip MA.

¹³ The price/earnings (P/E) ratio represents
market price per share

¹⁴ earnings per share
and is thus an expression of the market price as a multiple of current earnings.

And, since $D = \frac{E}{C}$ (8)

$$V = \frac{E}{C} \left[\frac{(1+g)}{(1+r)} + \frac{(1+g)^2}{(1+r)^2} + \frac{(1+g)^3}{(1+r)^3} + \frac{(1+g)^4}{(1+r)^4} \dots \right]$$

$$= \frac{(1+g)^n}{(1+r)^n} + \frac{(1+g)^n}{r} - \left\{ \frac{(1+g)^n}{(1+r)} + \frac{(1+g)^n}{(1+r)^2} + \frac{(1+g)^n}{(1+r)^3} \right.$$

$$\left. + \frac{(1+g)^n}{(1+r)^4} \dots \frac{(1+g)^n}{(1+r)^n} \right\} \quad (9)$$

The somewhat formidable formula between square brackets breaks down into three components – let us refer to them as X, Y and Z, so that:

$$V = \frac{E}{C} [X + Y - Z] \quad (10)$$

where $X = \frac{(1+g)}{(1+r)} + \frac{(1+g)^2}{(1+r)^2} + \frac{(1+g)^3}{(1+r)^3} + \frac{(1+g)^4}{(1+r)^4} \dots$

$$= \frac{(1+g)^n}{(1+r)^n} \quad (11)$$

It will be seen that $(1+g)$, $(1+g)^2$, $(1+g)^3$, $(1+g)^4 \dots$ $(1+g)^n$ represent £1 invested at compound interest¹⁴ at a rate g at the end of one, two, three, four and n years respectively; and that $\frac{1}{(1+r)}$, $\frac{1}{(1+r)^2}$, $\frac{1}{(1+r)^3}$

$\dots \frac{1}{(1+r)^n}$ represent the present value of a payment of £1 one, two, three, four and n years hence at a rate of interest r,¹⁵ each of which can be found from a suitable table.

¹⁴ A suitable table is 'Compound Interest', *Accountancy*, Ready Reference Card 11, P. D. Reynolds, CA Dip MA.

¹⁵ If $g > r$ we can let

$$(1+w) = \frac{(1+g)}{(1+r)} \quad (12)$$

in which case:

$$X = (1+w) + (1+w)^2 + (1+w)^3 \dots (1+w)^n \quad (13)$$

which is the sum of a geometric progression which can be calculated by interpolation in a table of compound interest, such as that in *Accountancy* Ready Reference Card 11.

Similarly, if $g < r$ we can let

$$\frac{1}{(1+q)} = \frac{(1+g)}{(1+r)} \quad (14)$$

in which case

$$X = \frac{1}{(1+q)} + \frac{1}{(1+q)^2} + \frac{1}{(1+q)^3} + \frac{1}{(1+q)^n} \quad (15)$$

which can be found by interpolation in a table of discounting factors such as that in *Accountancy* Ready Reference Card 3.

$$Y = \frac{(1+g)^n}{r} \quad (17)$$

=the present value of $(1+g)^n$,
i.e. the final dividend level, in perpetuity, discounting at rate r.

$$Z = \frac{(1+g)^n}{(1+r)} + \frac{(1+g)^n}{(1+r)^2} + \frac{(1+g)^n}{(1+r)^3} + \frac{(1+g)^n}{(1+r)^4} \dots$$

$$= \frac{(1+g)^n}{(1+r)^n} \quad (18)$$

=the present value of $(1+g)^n$ receivable annually for n years.

$\frac{E}{C}(Y - Z)$ thus represents the present value of

an annuity of $\frac{E}{C}(1+g)^n$, the first payment of which is deferred n years. (19)

$$\frac{E}{C}X \quad (20)$$

represents the present value of the dividend stream for the first n years and

$$\frac{E}{C}(Y - Z) \quad (21)$$

represents that of the dividends from year n+1 to infinity.

Illustration 3

An investor who seeks a total return of 10 per cent is interested in the ordinary shares of Oil Tankers Ltd. Earnings per share last year were 20p, the dividend of 10p being covered 2.0 times. The investor believes that the dividend will grow at 8 per cent per annum for ten years and then flatten out.

What is the maximum price per share (or P/E ratio) he should be prepared to pay?

Mathematically it is immaterial whether g exceeds or is less than r. We could let

$$x = \frac{(1+g)}{(1+r)} \quad (16)$$

in which case

$$X = x + x^2 + x^3 \dots x^n$$

This is easily written as a computer sub-routine, but cannot be used with annuity tables.

For a discussion of the mathematical basis of growth stock valuation see Appendix C, 'Growth Yields on Common Stocks', R. M. Soldofsky and J. T. Murphy, Bureau of Business and Economic Research, State of Iowa, 1961; 'The Theory of Investment Value', John Burr Williams, Amsterdam, 1964, pages 55 *et seq.*; 'Dividend Policy and Enterprise Valuation', James E. Walter, Wadsworth, Belmont, California, 1967.

Solution*Present value of first ten years' dividends¹⁶*

Year	Dividend	Discounting factor	Present value
1	£0.1080	0.909	£0.0982
2	0.1166	0.826	0.0963
3	0.1260	0.751	0.0946
4	0.1361	0.683	0.0928
5	0.1469	0.621	0.0912
6	0.1587	0.565	0.0897
7	0.1714	0.513	0.0879
8	0.1851	0.467	0.0867
9	0.1999	0.424	0.0848
10	0.2159	0.386	0.0833
			0.9055

Present value of a dividend of £0.2159 in perpetuity¹⁷:

$$\frac{0.2159}{0.10} = 2.1590$$

Less: Present value of £0.2159 per annum for ten years¹⁸

$$\frac{0.2159 \times 6.145}{0.10} = 1.3267$$

$$0.8323$$

*Present value of 1 share (earnings 20p) = £1.7378**∴ present value of earnings of £1 per share = £8.6890*

Thus, the P/E ratio an investor should be prepared to pay = (say) 8.69. Then, provided his assumptions of dividend growth of 8 per cent per annum for ten years, then flattening, is achieved, he will, if he holds the share in perpetuity, receive a growth return (i.e. one taking account of income and the growth in capital value of his investment) of 10 per cent per annum.

Tables 2, 3 and 4 show the P/E ratios implied by a number of rates and periods of dividend growth if the investor seeks a growth yield of 12, 8 and 4 per cent respectively.¹⁹

Tables 2, 3 and 4 will repay a certain amount of study. They reveal that :

¹⁶ In terms of formula (10) this represents $\frac{E}{C} \times X$.

¹⁷ In terms of formula (10) this represents $\frac{E}{C} \times Y$.

¹⁸ In terms of formula (10) this represents $\frac{E}{C} \times Z$.

ACCOUNTING AND BUSINESS RESEARCH**1. High cover depresses the P/E**

Equation (9) in its simplified form (10) shows that

$$V = \frac{E}{C}[X + Y - Z]$$

Since the supportable price/earnings ratio is simply

$$\frac{V}{E}$$

$$\text{the supportable P/E ratio} = \frac{V}{E} = \frac{1}{C}[X + Y - Z] \quad (22)$$

That is to say, the supportable P/E ratio is inversely related to the cover.

Illustration 4

Express Ltd ordinary shares are expected to show dividend growth of 12 per cent per annum for fifteen years, and, having reached that level, to continue to pay the same dividend indefinitely. If the growth yield demanded (r) is 8 per cent, the P/E an investor should be prepared to pay will depend on the cover:

Cover	P/E
1	41.9
1.5	27.9
2	20.9

A high P/E with high cover is only supportable if there is expected to be a high rate of growth over a prolonged period. All too often investors think of P/E ratios in isolation. A P/E which would be reasonable on a cover of 1.4 would be ridiculously high if the cover were 2.4.

2. The effect of increasing or reducing P_E depends on the relative rates of g and r

A If $g=r$ the present value of each year's dividends throughout the growth period is the same. Each additional year (or each year less) of growth has thus the same effect on the P/E.

B If $r>g$, the present value of each successive year's dividends is less than that of the preceding year. Each additional year of growth thus has a smaller effect on the P/E than that which preceded it.

C If $g>r$ the present value of each successive year's dividends is greater than that of the preceding year. Each additional year of growth thus has a greater effect on the P/E than that which preceded it.

¹⁹ Soldofsky and Murphy (see footnote 15) provide tables of P/D ratios for dividend growth rates of from 3 per cent to 12 per cent, and growth yields of from 2 per cent to 25 per cent on the assumption that growth is at a fixed rate for a period from 5-75 years. They also provide tables of P/D ratios implied by various two-step growth possibilities, e.g. ten years at 12 per cent followed by five years at 6 per cent.

Table 2

P/E ratio implied by a dividend growth period (P_g) at g per annum, and no dividend growth thereafter, where $r=0.12$ (i.e. 12%)

Cover=1

$P_g =$	$g =$	0	0.03	0.04	0.05	0.06	0.07	0.08	0.09	0.10	0.11	0.12
5	8.3	9.4	9.7	10.1	10.5	11.0	11.4	11.8	12.3	12.8	13.3	
10	8.3	10.1	10.7	11.5	12.2	13.1	14.0	14.9	16.0	17.1	18.2	
15	8.3	10.5	11.4	12.4	13.5	14.7	16.1	17.6	19.3	21.1	23.2	
20	8.3	10.8	11.9	13.1	14.5	16.1	17.8	19.9	22.3	25.0	28.1	
25	8.3	11.0	12.2	13.6	15.2	17.1	19.3	21.9	25.0	28.6	32.9	

Cover=1.5

$P_g =$	$g =$	0	0.03	0.04	0.05	0.06	0.07	0.08	0.09	0.10	0.11	0.12
5	5.6	6.2	6.5	6.8	7.0	7.3	7.6	7.9	8.2	8.5	8.8	
10	5.6	6.7	7.2	7.6	8.2	8.7	9.3	9.9	10.6	11.4	12.2	
15	5.6	7.0	7.6	8.3	9.0	9.8	10.7	11.7	12.8	14.1	15.5	
20	5.6	7.2	7.9	8.7	9.6	10.7	11.9	13.3	14.8	16.6	18.7	
25	5.6	7.3	8.1	9.0	10.1	11.4	12.9	14.6	16.6	19.0	21.9	

Cover=2

$P_g =$	$g =$	0	0.03	0.04	0.05	0.06	0.07	0.08	0.09	0.10	0.11	0.12
5	4.2	4.7	4.9	5.1	5.3	5.5	5.7	5.9	6.2	6.4	6.6	
10	4.2	5.0	5.4	5.7	6.1	6.5	7.0	7.5	8.0	8.5	9.1	
15	4.2	5.3	5.7	6.2	6.8	7.4	8.0	8.8	9.6	10.6	11.6	
20	4.2	5.4	5.9	6.5	7.2	8.0	8.9	9.9	11.1	12.5	14.0	
25	4.2	5.5	6.1	6.8	7.6	8.5	9.6	10.9	12.5	14.3	16.4	

It was shown in equation (22) that:

$$\text{the supportable P/E ratio} = \frac{1}{C}[X+Y-Z]$$

but X may be viewed as a geometric progression:

$$x+x^2+x^3+\dots+x^n \text{ where } x = \frac{(1+g)}{(1+r)} \text{ (equation 16).}$$

$(Y-Z)$ also increases with P_g .

So, if g is much greater than r the value placed on the investment (V), or the supportable P/E, may be very sensitive to changes (e.g. bad estimating) in P_g .

Illustration 5

Growth yield required is 4 per cent and the cover is 1.5; dividends are expected to grow at a rate of

10 per cent per annum:

If P_g is: Supportable P/E Effect on P/E ratio of increasing P_g by five years

10 years	38.4	+16.3
15 years	54.7	+21.7

As a test of whether an investor's growth expectations are excessive Graham, Dodd and Cottle²⁰ suggest a maximum multiplier of 20 times projected earnings four years hence. This would limit the acceptable P/E in this case to:

$$20 \times (1+0.10)^4 = 20 \times 1.4641 = 29.3$$

3. Changes in expected growth rate have a far-reaching effect on share values

The P/E ratio may be regarded as consisting of two components, P/E_n and P/E_g , where P/E_n is the P/E ratio which would be appropriate if $g=0$ and P/E_g is the addition to P/E_n caused by g being greater than 0, so that:

$$P/E = P/E_n + P/E_g$$

²⁰ *Security Analysis, Principles and Technique*, Graham, Dodd and Cottle, McGraw-Hill Book Co, New York; Fourth Edition 1962, page 473.

Table 3

P/E ratio implied by a dividend growth period (P_g) at g per annum, and no dividend growth thereafter, where $r=0.08$ (i.e. 8%)

Cover=1

$P_g=$	$g=$	0	0.03	0.04	0.05	0.06	0.07	0.08	0.09	0.10	0.11	0.12
5	12.5	14.2	14.8	15.5	16.1	16.8	17.5	18.2	19.0	19.7	20.6	
10	12.5	15.6	16.7	18.0	19.4	20.9	22.5	24.2	26.1	28.0	30.3	
15	12.5	16.6	18.3	20.2	22.4	24.8	27.5	30.5	33.9	37.4	41.9	
20	12.5	17.4	19.6	22.2	25.1	28.5	32.5	37.1	42.4	48.2	55.8	
25	12.5	18.1	20.7	23.9	27.6	32.1	37.5	44.0	51.8	60.5	72.5	

Cover=1.5

$P_g=$	$g=$	0	0.03	0.04	0.05	0.06	0.07	0.08	0.09	0.10	0.11	0.12
5	8.3	9.5	9.9	10.3	10.7	11.2	11.7	12.2	12.7	13.2	13.7	
10	8.3	10.4	11.2	12.0	12.9	13.9	15.0	16.1	17.4	18.7	20.2	
15	8.3	11.1	12.2	13.5	14.9	16.5	18.3	20.3	22.6	25.0	27.9	
20	8.3	11.6	13.1	14.8	16.7	19.0	21.6	24.7	28.3	32.1	37.2	
25	8.3	12.1	13.8	15.9	18.4	21.4	25.0	29.3	34.5	40.3	48.3	

Cover=2

$P_g=$	$g=$	0	0.03	0.04	0.05	0.06	0.07	0.08	0.09	0.10	0.11	0.12
5	6.3	7.1	7.4	7.7	8.1	8.4	8.7	9.1	9.5	9.9	10.3	
10	6.3	7.8	8.4	9.0	9.7	10.4	11.2	12.1	13.0	14.0	15.1	
15	6.3	8.3	9.2	10.1	11.2	12.4	13.7	15.2	16.9	18.7	20.9	
20	6.3	8.7	9.8	11.1	12.6	14.3	16.2	18.5	21.2	24.1	27.9	
25	6.3	9.1	10.4	11.9	13.8	16.0	18.7	22.0	25.9	30.2	36.2	

Thus if the growth yield required is 8 per cent and cover is 1.5, the premium being paid for growth expectations (P/E_g) for various values of g and P_g is:

$P_g=$	$g=$	from						
		0.03	0.04	0.05	0.06	0.07	0.08	0.10
5	1.2	1.6	2.0	2.4	2.9	3.4	4.4	
10	2.1	2.9	3.7	4.6	5.6	6.7	9.1	
15	2.8	3.9	5.2	6.6	8.2	10.0	14.3	
20	3.3	4.8	6.5	8.4	10.7	13.3	20.0	

It will be seen that if g falls P/E_g always falls as fast, and mostly much more rapidly.

Illustration 6

If the growth yield required is 8 per cent, cover is 1.5 and $P_g=20$ years, a fall in the rate of growth in dividend per share:

$from$	to	<i>i.e. of</i>
5% to 4%	20%	6.5 4.8 26.2%
10% to 8%	20%	20.0 13.3 33.5%
10% to 5%	50%	20.0 6.5 67.5%

Graham, Dodd and Cottle, writing of 'the shift of investment emphasis from values established by the past record to values to be achieved *solely* by future growth' remark: 'But we are sceptical of the ability of all but the most gifted analysts to chart with precision the growth rate of a given company for many years ahead. A large part of the market's valuation of our most popular common stocks is closely tied with prophecies as to their future growth; were the earnings actually to increase much more slowly than anticipated or not at all, the value justified by the past rate of earnings alone would be only a minor fraction of the part the "investor" pays'.²¹

²¹ Ibid, pages 57 and 58.

Table 4

P/E ratio implied by a dividend growth period (P_g) at g per annum, and no dividend growth thereafter, where $r=0.04$ (i.e. 4%)

Cover=1

$P_g =$	$g =$	0	0.03	0.04	0.05	0.06	0.07	0.08	0.09	0.10	0.11	0.12
5	25.0	28.7	30.0	31.3	32.8	34.3	35.8	37.4	39.0	40.7	42.5	
10	25.0	32.2	35.0	38.1	41.4	44.9	48.8	53.0	57.6	62.5	67.8	
15	25.0	35.5	40.0	45.0	50.8	57.3	64.6	72.9	82.1	92.6	104.5	
20	25.0	38.7	45.0	52.4	61.2	71.4	83.6	97.9	114.6	134.4	157.6	
25	25.0	41.7	50.0	60.1	72.5	87.8	106.5	129.5	157.7	192.2	234.6	

Cover=1.5

$P_g =$	$g =$	0	0.03	0.04	0.05	0.06	0.07	0.08	0.09	0.10	0.11	0.12
5	16.7	19.1	20.0	20.9	21.8	22.8	23.8	24.9	26.0	27.1	28.3	
10	16.7	21.4	23.3	25.4	27.6	30.0	32.6	35.3	38.4	41.7	45.2	
15	16.7	23.7	26.7	30.0	33.9	38.2	43.0	48.5	54.7	61.7	69.7	
20	16.7	25.8	30.0	34.9	40.8	47.6	55.7	65.2	76.4	89.6	105.1	
25	16.7	27.8	33.3	40.1	48.4	58.5	71.0	86.3	105.1	128.1	156.4	

Cover=2

$P_g =$	$g =$	0	0.03	0.04	0.05	0.06	0.07	0.08	0.09	0.10	0.11	0.12
5	12.5	14.3	15.0	15.7	16.4	17.1	17.9	18.7	19.5	20.3	21.2	
10	12.5	16.1	17.5	19.0	20.7	22.5	24.4	26.5	28.8	31.2	33.9	
15	12.5	17.8	20.0	22.5	25.4	28.6	32.3	36.4	41.1	46.3	52.2	
20	12.5	19.3	22.5	26.2	30.6	35.7	41.8	48.9	57.3	67.2	78.8	
25	12.5	20.8	26.0	30.0	36.3	43.9	53.3	64.7	78.8	96.1	117.3	

4. High P/E ratios are much more readily supportable when the growth rate demanded by investors (r) is low than when it is high

declines. A sharp set-back in g will produce an even sharper dive in P/E. This will arise:

- if a larger proportion of profits is ploughed back without a corresponding growth in expected dividends per share; or
- if earnings per share grow more slowly than anticipated;
- if the growth rate of return (r) demanded by the market rises.

In the middle of 1968 Tesco Stores (Holdings) Ltd ordinary shares stood at £1, with earnings per share 5d, P/E 48, the dividend of 2.2d being covered 2.3 times. Over the previous two years earnings per share had been rising at 18 per cent per annum. A similar rate of dividend growth would support a P/E of 48 on a growth return of 10 per cent only on the basis that it would continue for twenty-three years and that dividends thereafter would be maintained at that level.

Figure 1 shows this growth of dividends per share graphically. It will be seen that for a P/E of 48 to be justified on these assumptions would require dividends in 1991 of 99d per share, i.e. 45 times those in 1968.

Thus with cover 2.0 times:

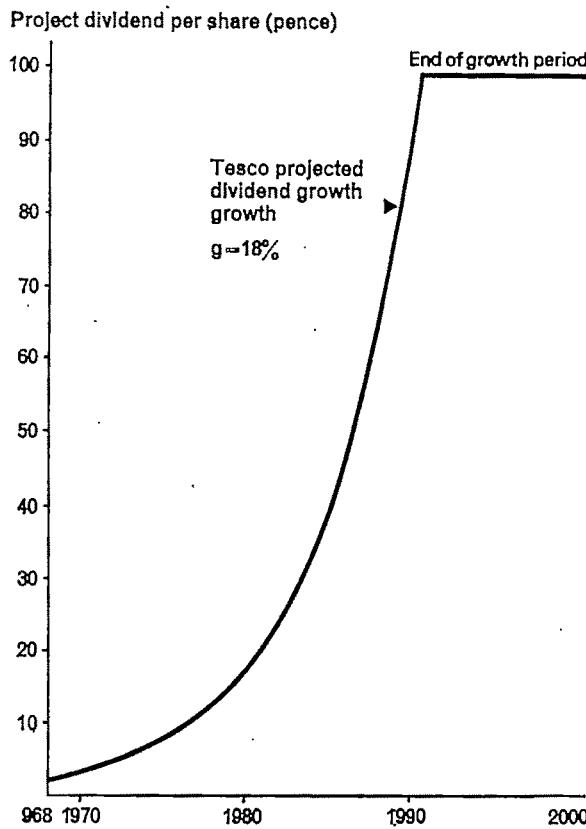
To support a P/E of	if r is	requires a growth in dividends per share of	for approximately
20	0.04	4%	15 years
	0.08	8%	28 years
	0.12	11%	52 years
30	0.04	6%	19 years
	0.08	11%	25 years
	0.12	12%	60 years

The price of a highflying growth stock is likely to nose-dive:

- if there is any suspicion that the probable growth period is unlikely to materialise;
- if the rate of growth of dividends per share (g)

Figure 2 shows (assuming a required growth return of 10 per cent) how the 1968 share price of £1 consists of the present value of the future dividend stream. It also shows just how violently this would change if growth expectations fell, so that the market expected only fifteen years' dividend growth, at 15 per cent, and demanded a return of 12 per cent. The grey area in Figure 2 represents the sharp difference in share price caused by such a (hypothetical) change

Figure 1



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in expectations. It will be apparent, therefore, just how important are estimates of dividend growth.

Earnings per share as the basis of the P/E ratio

Earnings per share are of obvious importance as the source of:

- (1) dividends; and
- (2) retained earnings.

They can also be viewed as one component in the determination of the market price of a share, for:

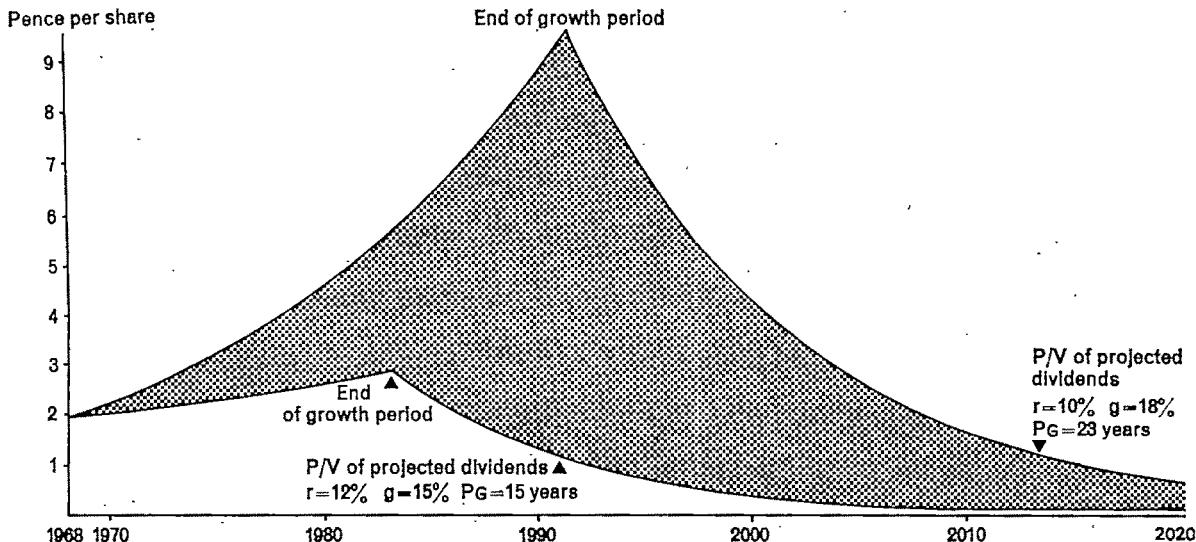
$$\text{earnings per share} \times \text{P/E ratio} = \text{market price} \quad (23)$$

In fact, they have a double effect on market price, for in addition to being a multiplying factor in their own right they play a vital role in determining the P/E ratio. To think of the P/E ratio as a mere number, as simply the result of dividing share price by earnings, is to miss its significance. The P/E ratio reflects the market's expectations of the way in which earnings are likely to grow from their present level. It has already been shown (see Tables 2, 3 and 4) that in a non-growth situation the P/E ratio is determined by:

- (i) the payout ratio; and
- (ii) the rate of return demanded by the investor; and that higher P/E ratios than those shown in the $g=0$ columns of Tables 2, 3 and 4 are only supportable if earnings are expected to grow.

Current earnings per share are the link between past earnings per share and future earnings per share. In itself the past is of no significance for this purpose; it is only important in so far as it provides us with a base from which to predict the future. In trying to do this, merely to compare earnings per share last year with those for this year is an oversimplification; it is necessary to distinguish between:

Figure 2



- (1) those changes in earnings which are exceptional and non-recurring;
- (2) those changes in earnings which are capable of being permanent, but scope for whose repetition is restricted; and
- (3) those changes in earnings which represent sustainable growth.

It is standard practice in North America for earnings per share to be shown both before and after extraordinary items in the income statement or profit and loss account. In this country it has, in the past, been permissible to show almost any realised profit or loss, which is not in the ordinary course of the business of the period, in the movements in reserves rather than in the profit and loss account. Until these realised profits and losses are all shown in the profit and loss account in the appropriate place for extraordinary items it is not considered that the earnings per share after extraordinary items will show a useful and meaningful figure; until basic and fully diluted earnings per share become a generally accepted part of the reporting procedures of quoted companies, it may also be thought that presentation of six or eight different earnings per share figures is excessive. However as soon as extraordinary items have been defined and are in practice *all* included in the appropriate place in the profit and loss account, the Accounting Standards Steering Committee believes that quoted companies should be encouraged to show their effect in terms of earnings per share.

At present, therefore, we are in a transitional state. Companies still do not distinguish sufficiently clearly between solid, respectable, normal, earnings, and those of a windfall nature. Investors are thus led to believe that exceptional and non-recurring earnings – or, for that matter, negative earnings – are unimportant. Everything which affects the owners' equity is important, whether it is credited (or charged) to reserves, to retained earnings (in the appropriation account), or in computing the year's earnings; to ignore such adjustments altogether, as some investors tend to, is utter foolishness. To say this does not, however, solve the problem. It is often difficult to assess the effect of many adjustments for exceptional or non-recurring items, either on future earnings or on future dividends. One thing is certain: the jump (or fall) in the year's earnings per share due to exceptional and non-recurring items is not the measure of the change in earnings per share which may occur as a result in future years.

So much for exceptional and non-recurring items. But how does one distinguish between that part of earnings growth which is sustainable, and that which is real, and neither exceptional and non-recurring in

an accounting sense, but which has a once-and-for-all element about it?

Earnings per share: the product of five variables

In simple terms earnings per share (E) can be expressed as the product of five variables:²²

$$E = M \times S \times G \times T \times A \quad (24)$$

where

M is the ratio of profit before interest and tax/sales ('margin')

S is the ratio of sales/net assets (at the *end* of the period)²³

G is the gearing effect of capital

T is the after tax rate as a decimal (i.e. 1 – T is the rate of corporation tax)

A is the asset value of an ordinary share (at the *end* of the period)²⁴

Using the symbolism

E_{-1} = earnings per share last year ('Year₋₁')

E_0 = earnings per share this year ('Year₀')

E_1 = earnings per share next year ('Year₁') and so on, the growth in earnings per share between Year₋₁ and

$$\text{Year}_0 = \frac{E_0}{E_{-1}} \text{ and}$$

$$\frac{E_0}{E_{-1}} = \frac{M_0}{M_{-1}} \times \frac{S_0}{S_{-1}} \times \frac{G_0}{G_{-1}} \times \frac{T_0}{T_{-1}} \times \frac{A_0}{A_{-1}} \quad (25)$$

Let us look at each component in turn:

$\frac{M_0}{M_{-1}}$ Profit before interest and tax as a percentage of sales is a complex variable, determined not merely by operating efficiency but by competition and the outcome of research and development in the form of new and improved products.

Improvement of M is an uphill fight. Even the maintenance of a ratio which is higher than that of other companies in the industry is

difficult. The improvement of $\frac{M_0}{M_{-1}}$ cannot therefore be regarded as a source of *sustainable* earnings per share growth.

$\frac{S_0}{S_{-1}}$ Sales/capital employed (in the shape of net assets) is a measure of the utilisation of assets.

²² *The Concept of Sustainable Growth*, Guildford C. Babcock, *Financial Analysts' Journal*, May-June 1970.

²³ Net assets = fixed assets (net after deducting depreciation provisions) + net current assets + goodwill + long and medium term debt + outside shareholders + future tax and other provisions + preference share capital + ordinary shareholders' funds = capital employed at the end of the period. This follows the practice of Moodies Services, though some investment analysts and accountants use as their basis the opening balance sheet; and ED4 by using the weighted average equity Share Capital by implication uses a mixture.

Again, there is scope for improvement in the ratio, amongst other things by acquiring more effective plant and working it to capacity, while at the same time reducing, so far as possible, capital tied up in working capital.

As a source of a temporary spurt in earnings per share an improvement in $\frac{S_0}{S_{-1}}$ is fruitful.

But it is not a source of *sustainable* growth over the long term.

$\frac{G_0}{G_{-1}}$ represents the gearing effect. It consists of two components, G_d and G_p , due respectively to the use of debt and preference capital.

$$G_d = \frac{(PBIT - DI)/SF}{PBIT/NA} \quad (26)$$

and

$$G_p = \frac{E/ESF}{(E+PD)/SF} \quad (27)$$

where

PBIT = profits before interest and tax

DI = interest on debt

SF = shareholders' funds, i.e. ordinary and preference capital + reserves

NA = net assets (see footnote 23)

E = earnings available for ordinary shareholders

ESF = equity shareholders' funds, i.e. ordinary capital + reserves

PD = preference dividend

$$G = G_d \times G_p \quad (28)$$

Illustration 7

		Year ₋₁	Year ₀
		£	£
Profits before interest and tax	PBIT	20,000	40,000
Debenture interest	DI	4,000	4,000
Profit before tax	PBIT - DI	16,000	36,000
Corporation tax say 40 per cent		6,400	14,400
Profit after tax	E + PD	9,600	21,600
Preference dividend	PD	1,800	1,800
Earnings (all paid in ordinary dividends)	E	£7,800	£19,800

For the sake of simplicity the balance sheet is assumed not to change from Year₋₁ to Year₀, i.e. there is assumed to be no change in capital and no ploughback.

	£
Ordinary share capital and reserves	ESF
Preference share capital (9 per cent)	20,000
	60,000
10 per cent debentures	40,000
	100,000

Year₋₁

$$G_d = \frac{(PBIT - DI)/SF}{PBIT/NA} = \frac{16,000/60,000}{20,000/100,000} = 1.3333$$

$$G_p = \frac{E/ESF}{(E+PD)/SF} = \frac{7,800/40,000}{9,600/60,000} = 1.2188$$

$$G = 1.333 \times 1.2188 = 1.6250$$

Year₀

$$G_d = \frac{(PBIT - DI)/SF}{PBIT/NA} = \frac{36,000/60,000}{40,000/100,000} = 1.5000$$

$$G_p = \frac{E/ESF}{(E+PD)/SF} = \frac{19,800/40,000}{21,600/60,000} = 1.3750$$

$$G = 1.5000 \times 1.3750 = 2.0625$$

$$\text{Therefore } \frac{G_0}{G_{-1}} = \frac{2.0625}{1.6250} = 1.2692$$

G can improve spectacularly as profitability increases, but such improvements cannot be repeated indefinitely. The company could, of course, issue more loan stock, etc. (become more highly geared) but the extent to which it can do this is limited by the market. Changes in G cannot, therefore, be looked to as a source of *sustainable* growth.

T₀ Earnings per share are obviously affected by the T₁ effective rate of taxation; only to a limited extent is this within the control of the company (e.g. when it decides whether or not to set up in a development area).

The cut in the rate of corporation tax from 45 per cent in 1968 to 42½ per cent in 1969 will increase earnings per share by a multiplier of:

$$\frac{1 - 0.425}{1 - 0.450} = 1.0454, \text{ i.e. about } 4\frac{1}{2} \text{ per cent. Once again, this is not a source of sustainable growth.}$$

So far we have considered M, S, G and T as possible sources of sustainable growth. It is instructive to multiply these together (using the symbolism developed under G):

$$M \times S \times G = \frac{PBIT}{NA} = \text{return on net assets} \quad (29)$$

$$M \times S \times G \times T = \frac{E}{ESF} \quad (30)$$

i.e. earnings/ordinary shareholders' funds

Illustration 8

Adopting the data for Year₋₁ in Illustration 7 together with: sales = £200,000, then:

$$M = \frac{20,000}{200,000} = 0.10$$

$$S = \frac{200,000}{100,000} = 2$$

$M \times S$ = return on net assets = $2 \times 0.10 = 0.20 = 20$ per cent

$$G = 1.6250$$

$$T = 1 - 0.40 = 0.60$$

$$\frac{E}{ESF} = \text{earnings/ordinary shareholders' funds}$$

$$= 0.10 \times 2 \times 1.625 \times 0.60 = 0.195 = 19\frac{1}{2} \text{ per cent.}$$

A₀ We have seen that improvements in M, S, G and T represent possible sources of growth in earnings per share from one year to another, but that none of these will produce sustained growth year in and year out. We are left with only A: net asset value per ordinary share.

What does $A_0 - A_{-1}$ represent? Once again we are faced with a complex variable which can be split into two components:

- (1) that due to retained earnings;
- (2) that due to all other sources.

Using C to represent times covered, and Q to represent the component due to all other sources:

$$A_0 - A_{-1} = Q_0 + E_0 \left(\frac{C_0 - 1}{C_0} \right) \quad (31)$$

Q is a catchall covering the assets per share effect of such things as new equity issues, the effect of acquisitions²⁴ and changes in net asset value per share due to sales of assets, etc not forming part of earnings per share (e.g. adjusted directly to reserves).

Equation (31) can be re-written:

²⁴ Many investment analysts deduct goodwill when computing net assets and shareholders' and equity shareholders' funds. This obviously affects ratios S and G. It also reduces the Q effect wherever there is an acquisition with a goodwill element.

$$A_0 - E_0 \left(\frac{C_0 - 1}{C_0} \right) = A_{-1} + Q_0$$

and

$$I = \frac{A_{-1} + Q_0}{A_0 - E_0 \left(\frac{C_0 - 1}{C_0} \right)}$$

Multiplying both sides by $\frac{A_0}{A_{-1}}$

$$\frac{A_0}{A_{-1}} = \frac{A_{-1} + Q_0}{A_{-1}} \times \frac{A_0}{A_0 - E_0 \left(\frac{C_0 - 1}{C_0} \right)}$$

$$= I + \frac{Q_0}{A_{-1}} \times \frac{I}{I - \left\{ E_0 \left(\frac{C_0 - 1}{C_0} \right) \div A_0 \right\}}$$

and thus, since $E_0 = M_0 S_0 G_0 T_0 A_0$

$$\frac{A_0}{A_{-1}} = I + \frac{Q_0}{A_{-1}} \times \frac{I}{I - M_0 S_0 G_0 T_0 \left(\frac{C_0 - 1}{C_0} \right)} \quad (32)$$

Illustration 9

Yellow Ltd acquired Zed Ltd on 1 January 1971.	
Net assets of Yellow Ltd immediately before acquisition	£2.00m
Number of Yellow Ltd ordinary shares (£1) immediately before acquisition	0.80m
Asset value per Yellow Ltd ordinary share before acquisition	£2.50
Shares issued to acquire Zed Ltd: 400,000 shares (£1) at £3	£1.20m
Net assets of Zed Ltd (excluding goodwill)	£0.80m
Goodwill	£0.40m
Asset value immediately after acquisition (including goodwill)	

$$= \frac{£2.00m + £1.20m}{1.2m}$$

$$= £2.66$$

$$\text{Q factor (including goodwill)} = \left(I + \frac{Q_0}{A_{-1}} \right)$$

$$= \left(I + \frac{£2.66 - £2.50}{£2.50} \right)$$

$$= I + \frac{0.16}{2.50}$$

$$= 1.066$$

That is to say, the change in asset value per share is explained by non-recurring external factors, by the absolute value of M, S, G and T, and by the rate of

$$\text{retentions } \frac{C-I}{C}$$

Combining equations (25) and (32):

$$\frac{E_0}{E_{-1}} = \left(\frac{M_0}{M_{-1}} \right) \left(\frac{S_0}{S_{-1}} \right) \left(\frac{G_0}{G_{-1}} \right) \left(\frac{T_0}{T_{-1}} \right) \left(I + \frac{Q_0}{A_{-1}} \right)$$

$$\left(\frac{I}{I - M_0 S_0 G_0 T_0 \left(\frac{C_0 - I}{C_0} \right)} \right) \quad (33)$$

The first five of these factors will introduce *fluctuations* in earnings per share. Only the last factor, which itself depends on the absolute values of the key factors, can be regarded as a source of *sustainable* growth.

Illustration 10

Balance Sheet

	as at 31 December	
	Year ₋₁	Year ₀
Capital: ordinary shares of £1 each	£100,000	£120,000
Reserves: profit and loss account	150,000	180,000
share premium account	—	60,000
Equity shareholders' funds	250,000	360,000
10 per cent unsecured loan stock	50,000	90,000
Net assets	£300,000	£450,000

	Year ended 31 December	
	Year ₋₁	Year ₀
Sales	£1,000,000	£1,800,000
Profit before interest and tax	90,000	150,000
Loan stock interest	5,000	9,000
Profit before tax	85,000	141,000
Corporation tax	38,250	59,925
Earnings	46,750	81,075
Ordinary dividend	26,750	51,075
Retained	£20,000	£30,000
Earnings per share	£0.4675	£0.6756

$$\text{Growth in earnings} = \frac{E_0}{E_{-1}} = \frac{0.6756}{0.4675} = 1.445 \text{ times}$$

Where has it come from?

$$\frac{E_0}{E_{-1}} = \left(\frac{M_0}{M_{-1}} \right) \left(\frac{S_0}{S_{-1}} \right) \left(\frac{G_0}{G_{-1}} \right) \left(\frac{T_0}{T_{-1}} \right) \left(I + \frac{Q_0}{A_{-1}} \right)$$

$$\left(\frac{I}{I + M_0 S_0 G_0 T_0 \left(\frac{C_0 - I}{C_0} \right)} \right)$$

The margin on sales fell from 9 per cent to 8½ per cent, and so depressed earnings per share to

$$\frac{M_0}{M_{-1}} = \frac{0.0833}{0.0900} = 0.9260 \text{ times their Year}_{-1} \text{ level (i.e. by 8.4 per cent).}$$

The increase in the ratio of sales/net assets from 3.3333 to 4.0000 times increased earnings per share to $\frac{S_0}{S_{-1}} = \frac{4.0000}{3.3333} = 1.2000$ times their Year₋₁ level (i.e. by 20 per cent).

The effect of the gearing was to increase earnings in Year₀ by a factor of:

$$\frac{G_0}{G_{-1}} = \frac{0.3917}{0.3000} \times \frac{0.3000}{0.3400} = 1.1750 \times 0.8824 = 1.0386$$

(i.e. by 3.68 per cent).

The effect of the change in corporation tax rates was to increase earnings in Year₀ by a factor of:

$$\frac{T_0}{T_{-1}} = \frac{1 - 0.4250}{1 - 0.4500} = \frac{0.5750}{0.5500} = 1.0454 \text{ (i.e. by 4.54 per cent).}$$

Thus changes in M, S, G and T meant that earnings as a percentage of ordinary shareholders' funds (i.e. asset value) were:
 $0.9260 \times 1.2000 \times 1.0368 \times 1.0454 = 1.2050$ times those in Year₋₁.

At the beginning of Year₀ there was a rights issue (1 for 5 at £4), the effect of which was to increase asset value per share in Year₀ by a factor of:

$$I + \frac{Q_0}{A_{-1}}$$

where

$$Q_0 = \frac{A_{-1} S_0 + P_R - A_{-1}}{S_0 + S_R} \quad (34)$$

P_R = proceeds of rights issue (£80,000, in this case)

S₀ = number of ordinary shares before the rights issue (100,000)

S_R = number of ordinary shares issued by way of rights (20,000)

$$A_{-1} = \text{asset value per share at the end of Year}_{-1}$$

$$= \frac{\text{£250,000}}{100,000} = \text{£2.50}$$

Thus

$$I + \frac{Q_0}{A_{-1}} = I + \frac{\left(\frac{A_{-1} S_0 + P_R - A_{-1}}{S_0 + S_R} \right)}{A_{-1}}$$

$$= 1 + \frac{\left(\frac{£2.50 \times 100,000 + £80,000}{100,000 + 20,000} - 2.50 \right)}{2.50}$$

$$= 1 + \frac{2.75 - 2.50}{2.50} = 1.10$$

Thus non-sustainable elements accounted for growth of earnings by a factor of:

$$1.205 \times 1.10 = 1.325 \text{ (i.e. by 32.5 per cent)}$$

Retentions increased earnings per share by a factor of:

$$\frac{1}{1 - M S G T \left(\frac{C - I}{C} \right)}$$

$$= \frac{1}{1 - (0.083)(4)(1.175)(0.575) \left(\frac{81,075 - 51,075}{81,075} \right)}$$

$$= \frac{1}{1 - 0.08333} = 1.0909 \text{ (i.e. by 9.09 per cent)}$$

The combined effect of all these factors has been to increase earnings per share by a factor of:

$$\frac{E_0}{E_{-1}} = \frac{0.6756}{0.4675} = 1.445 = 1.325 \times 1.0909$$

Can growth of 44.5 per cent per annum be sustained? The answer is obviously no.

What is the best estimate we can make of growth in Year₁? The growth in earnings per share due to retentions of Year₀ may be estimated as:

$$\frac{1}{1 - M_0 S_0 G_0 T_0 \left(\frac{C - I}{C_0} \right)}$$

$$= \frac{1}{1 - (0.083)(4)(1.175)(0.575) \left(\frac{81,075 - 51,075}{81,075} \right)}$$

= 9.09 per cent provided M, S, G and T can be maintained at their Year₀ level.

The need for comparative data

Disclosure of earnings per share is thus likely to encourage investors and investment analysts to look behind the changes which occur in ratios like M, S, G, T and A in an attempt to assess future prospects. Indeed, it may not be long before investors ask not simply for earnings per share as a £p amount in five or ten year summaries, but for comparative data on:

- (1) profit margin;
- (2) asset turnover;
- (3) gearing effect;
- (4) profit after tax as a proportion of profit before tax;
- (5) asset value per ordinary share at the beginning of the year;

(6) the effect on asset value per ordinary share of the current year's retentions;

(7) the effect on asset value per ordinary share of acquisitions, share issues for cash, etc. sufficient to disclose the effect of each on earnings per share growth;

(8) the effect on total earnings of recent acquisitions.

All this information *could* be supplied by accountants without difficulty. Until it is, a large part of the usefulness of earnings per share as a tool of analysis will be neglected. It is not sufficient for the data to be available in Moodies²⁵ or Extel card services.

The effects of inflation on earnings per share

Unfortunately there is one very real snag with all this: everything which has been said so far is true in a *stable economy*. But inflation plays havoc with profitability and balance sheet ratios.

Accountants admit that inflation exists, and that it makes nonsense of accounts prepared on a historical cost basis. Every few years the professional bodies take another look at the problem only to chew it over, decide it is insoluble, and sweep it under the carpet to be rediscovered five or ten years later. Despite the importance and topicality of inflation few accountants show any real interest in the subject – as evidence of this witness the lack of interest shown in *Accounting for Stewardship in a Period of Inflation*.²⁶ It is scarcely surprising, therefore, that investment analysts, while recognising that equities to some extent form a 'hedge against inflation' ignore it in most of their calculations, like Mr Babcock²⁷ in his analysis of sustainable growth.

But inflation does not go away if it is ignored; and it makes nonsense of many investment statistics. Let us see how it affects growth of earnings per share in a simple situation.

Table 5 shows the summary profit and loss accounts

²⁵ In any case, not all the necessary ratios, i.e. M, S, G, T, A, Q and $\frac{C - I}{C}$ appear, at present, on (for example) Moodies cards: M does, and is termed 'pre-tax profits as percentage of turnover'; S does, as 'turnover as a percentage of capital employed including goodwill'; G does not; T does not, but is 1 - 'tax charged' as a decimal percentage; A does, as 'net asset value per share'; Q does not; $\frac{C - I}{C}$ does not, but C does.

²⁶ The Research Foundation of the Institute of Chartered Accountants in England and Wales; 1968.

and balance sheets of Standstill Ltd, an imaginary company which suffers from the effects of inflation, but otherwise remains unchanged (i.e. without any growth in volume) year after year.

On 1 January 1950 the company purchased plant costing £500,000, which had an expected life of twenty years, and which is depreciated by the straight-line method at the rate of £25,000 per annum on the basis that its residual value will be nil. The company's other assets on 31 December 1950 were:

Net current assets other than cash	£450,000
Cash	75,000

On 1 January 1950 the company had an issued share capital of 500,000 ordinary shares of £1 each; revenue reserves of £100,000; and it had in issue £400,000 10 per cent debentures (irredeemable). Sales in 1950 were £1,000,000; the cost of wages, materials and overheads (other than depreciation and interest) was £800,000. Stocks (31 December 1950 = £80,000) are valued at cost excluding depreciation and interest²⁷ on a first in first out basis, and represent the same

²⁷ If the stock valuation were to include depreciation and/or interest, stock values would rise more slowly than the 4 per cent rate of inflation assumed in the model.

TABLE 5

Standstill Ltd

Profit and loss account for the year:

	1950	1951	1952	1953	1954	1955	1956	1957	1
Sales	1,000	1,040	1,082	1,125	1,170	1,217	1,265	1,316	1,
Less: Cost of sales: wages, materials, etc., incurred	800	832	866	900	936	974	1,012	1,053	1,
Deduct: 'Stock gain'	0	3	3	3	4	4	4	4	—
Depreciation	800	829	863	897	932	970	1,008	1,049	1,
	25	25	25	25	25	25	25	25	—
	825	854	888	922	957	995	1,013	1,074	1,
Profit before interest and tax	175	186	194	203	213	222	232	242	—
Debenture Interest	40	40	40	40	40	40	40	40	—
Profit before tax	135	146	154	163	173	182	192	202	—
Corporation tax	54	58	62	65	69	73	77	81	—
Profit after tax	81	88	92	98	104	109	115	121	—
Dividend	81	88	92	98	104	109	115	121	—
Retained	0	0	0	0	0	0	0	0	—
Balance sheet as at 31 December:									
Share capital:									
Ordinary	500	500	500	500	500	500	500	500	—
Share premium account	0	0	0	0	0	0	0	0	—
Other reserves	100	100	100	100	100	100	100	100	—
Shareholders' funds	600	600	600	600	600	600	600	600	—
10% debentures	400	400	400	400	400	400	400	400	—
	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Plant:									
Cost	500	500	500	500	500	500	500	500	—
Less: Depreciation	25	50	75	100	125	150	175	200	—
	475	450	425	400	375	350	325	300	—
Net current assets other than cash	450	468	487	506	527	548	569	592	—
Minimum cash balance	75	78	81	84	88	91	95	99	—
Surplus cash	0	4	7	10	10	11	11	9	—
	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000

NOTE: The item 'stock gain' represents the difference between the opening and closing valuations due to inflation. Thus in 1951 opening stock was £80,000. The closing stock was 104% of £80,000, i.e. £83,200. Cost of sales is thus: £80,000 + £832,000 - £83,200 = £25,000 = £853,800, which is £854,000 to the nearest £1,000.

physical quantity at the end of each year. Corporation tax is assumed to be payable throughout at 40 per cent on the profit after interest disclosed by the accounts. Prices are assumed to be constant during 1950. Thereafter inflation occurs at the rate of 4 per cent per annum compound. For the sake of simplicity all prices are assumed to rise by 4 per cent on 1 January each year, beginning with 1951.

On 1 January 1970 the entire plant is replaced at its 1970 cost (1950 price + 4 per cent per annum compound) of £1,096,000. To pay for this the company raises £400,000 by means of further issue of 10 per

cent debentures at par, which returns the gearing to the 1950 level, and £696,000 by means of an issue of 160,000 ordinary shares at £4.35 per share (i.e. on the basis of an apparent P/E of approximately 10). The new plant, like the old, is assumed to have a twenty year life and a nil scrap value.

Each year the company pays out the entire available earnings of the year by way of dividend, *provided* that the cash balance does not fall below the equivalent of £75,000 in 1950 £s. Any cash surplus to these requirements is held on current account and does not earn interest. As will be seen from Table 5, to comply

1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971 £000
423	1,480	1,540	1,601	1,665	1,732	1,801	1,873	1,948	2,026	2,107	2,191	2,279
138 4	1,184 5	1,232 5	1,281 5	1,332 5	1,386 5	1,441 6	1,498 6	1,558 6	1,621 6	1,686 7	1,753 7	1,823 7
134 25	1,179 25	1,227 25	1,276 25	1,327 25	1,381 25	1,435 25	1,492 25	1,552 25	1,615 25	1,679 25	1,746 55	1,816 55
159	1,204	1,252	1,301	1,352	1,406	1,460	1,517	1,577	1,640	1,704	1,801	1,871
264 40	276 40	288 40	300 40	313 40	326 40	341 40	356 40	371 40	386 40	403 40	390 80	408 80
224 90	236 94	248 99	260 104	273 109	286 114	301 120	316 126	331 132	346 138	363 145	310 124	328 131
134 134	142 140	149 143	156 149	164 155	172 162	181 170	190 177	199 184	208 192	218 201	186 186	197 197
0	2	6	7	9	10	11	13	15	16	17	0	0
500 0	500 0	500 0	500 0	500 0	500 0	500 0	500 0	500 0	500 0	500 0	660 536	660 536
100	102	108	115	124	134	145	158	173	189	206	206	206
600 400	602 400	608 400	615 400	624 400	634 400	645 400	658 400	673 400	689 400	706 400	1,402 800	1,402 800
1,000	1,002	1,008	1,015	1,024	1,034	1,045	1,058	1,073	1,089	1,106	2,202	2,202
500 250	500 275	500 300	500 325	500 350	500 375	500 400	500 425	500 450	500 475	500 500	1,096 55	1,096 110
250 640	225 666	200 693	175 720	150 749	126 779	100 810	75 843	60 877	25 912	0 948	1,041 986	986 1,026
107 3	111 0	115 0	120 0	125 0	130 0	135 0	140 0	146 0	152 0	158 0	164 11	171 19
1,000	1,002	1,008	1,015	1,024	1,034	1,045	1,058	1,073	1,089	1,106	2,202	2,202

TABLE 6

Standstill Ltd

	<i>E</i>	=	<i>M</i>	\times	<i>S</i>	\times	<i>G</i>	\times	<i>T</i>	\times	<i>A</i>
1950	0.1620		0.1750		1.000		1.286		0.60		1.200
1951	0.1760		0.1788		1.040		1.306		0.60		1.200
1952	0.1840		0.1793		1.082		1.325		0.60		1.200
1953	0.1960		0.1804		1.125		1.340		0.60		1.200
1954	0.2080		0.1821		1.170		1.352		0.60		1.200
1955	0.2180		0.1824		1.217		1.365		0.60		1.200
1956	0.2300		0.1833		1.265		1.379		0.60		1.200
1957	0.2420		0.1839		1.316		1.393		0.60		1.200
1958	0.2560		0.1848		1.369		1.403		0.60		1.200
1959	0.2680		0.1855		1.423		1.413		0.60		1.200
1960	0.2840		0.1865		1.477		1.425		0.60		1.204
1961	0.2980		0.1870		1.528		1.427		0.60		1.216
1962	0.3120		0.1874		1.577		1.429		0.60		1.230
1963	0.3280		0.1880		1.626		1.431		0.60		1.248
1964	0.3440		0.1882		1.675		1.432		0.60		1.268
1965	0.3620		0.1893		1.723		1.433		0.60		1.290
1966	0.3800		0.1901		1.770		1.429		0.60		1.316
1967	0.3980		0.1905		1.815		1.422		0.60		1.346
1968	0.4160		0.1905		1.860		1.418		0.60		1.378
1969	0.4360		0.1913		1.905		1.412		0.60		1.412
1970	0.2818		0.1780		0.995		1.248		0.60		2.124
1971	0.2985		0.1790		1.035		1.284		0.60		2.124

KEY:

E=earnings per share*M*=profit before interest and tax/sales*S*=sales/net assets*M* \times *S*=profit before interest and tax/net assets*G*= $\frac{\text{earnings}}{\text{ordinary shareholders' funds}}$ $\frac{\text{profit before interest and tax}}{\text{net assets}}$ *T*=1—rate of corporation tax (as a decimal)*A*=asset value per share = $\frac{\text{ordinary shareholders' funds}}{\text{number of shares}}$

with the minimum cash requirement it is unnecessary for the company to retain any part of its earnings until 1960, and even then the payout ratio always rather exceeds 90 per cent.

Everything, in fact, continues happily until 1969/70, when it becomes obvious that the company can only survive if there is a vast injection of cash (namely, £1,096,000, if the dividend growth record is to be maintained).²⁸

As already stated, Table 5 shows summary profit and loss accounts and balance sheets of Standstill Ltd covering a period of twenty-two years. Table 6 expresses the results shown in Table 5 in terms of *E*, the earnings per share (column 1), and of the five ratios *M*, *S*, *G*, *T* and *A* which, multiplied together, form the background of *E*; and Table 7 shows the growth in *E*, *M*, *S*, *G*, *T* and *A* in selected years.

Six years are of particular significance:

²⁸ The dividend for 1969 could have been cut to increase retentions. Taken to the extreme, i.e. a £0 dividend, this would make the cash required from shareholders' £696,000—£201,000=£495,000; but the result would be a considerable loss in market confidence and a much lower share price. It might well be necessary to issue more shares to raise £495,000 with a zero dividend in 1969 than to attract £696,000 if the dividend were maintained.

(1) 1950 shows how Standstill Ltd performs in a non-inflationary situation;

(2) 1951 is the first year of inflation;

(3) 1952 is the first year in which there is an established inflationary pattern;

(4) 1969 is the last year before the entire plant is replaced;

(5) 1970 is the year in which it is replaced;

(6) 1971 is the second year of the new pattern.

If earnings per share in 1951 are compared with those in 1950 (see Table 6), it will be seen that they grew from 0.1620 to 0.1760, i.e. by 8.6 per cent; that

TABLE 7

	$\frac{E_0}{E_{-1}}$	$\frac{M_0}{M_{-1}}$	$\frac{S_0}{S_{-1}}$	$\frac{G_0}{G_{-1}}$	$\frac{T_0}{T_{-1}}$	$\frac{A_0}{A_{-1}}$
1951	1.088	1.022	1.040	1.016	1.000	1.000
1952	1.045	1.003	1.040	1.015	1.000	1.000
1959	1.047	1.004	1.039	1.007	1.000	1.000
1969	1.048	1.004	1.024	0.996	1.000	1.025
1970	0.848	0.930	0.522	0.884	1.000	1.504
1971	1.059	1.006	1.040	1.013	1.000	1.000

is to say, more than twice as fast as the rate of inflation used in the model (4.0 per cent). Table 7 shows this to have been due to a combination of three factors, namely increases in M, S and G. T remained unchanged because the tax rate was fixed in the model. A remained unchanged because there was no plough back of profits.

Now compare 1951 with 1952. Once again, earnings per share will be seen to have risen (from £0.1760 to £0.1840), an increase of 4.5 per cent. Note that the effects of inflation (or an increase in the rate of inflation) is much greater in its first year than after it has once become established. Even so, earnings per share have risen faster than the rate of inflation of 4 per cent.

From 1952 to 1969 inclusive earnings per share continue to rise somewhat faster than the rate of inflation: M grows very slowly (by about 0.3 per cent per annum) and S grows much more rapidly (by about 4 per cent in the early years, but more slowly later). G rises until 1965, at which point the effect of increases in the asset base exceeds that of inflation on turnover.

Table 8 shows the two components of G. It will be seen that both PBIT/NA (the 'return on net assets') and E/ESF ('earnings/equity shareholders'

funds') continue to rise until 1969, but that the rise in E/ESF fails to outpace PBIT/NA and so increase or even maintain G after 1965.

In 1970 the replacement of the plant, coupled with the new issues of shares and debentures, upsets all the ratios, and there is a 35.4 per cent fall in earnings per share.

How much of these increases is 'real' and how much is merely the result of accounting conventions? On the face of things, since the model is a non-growth model, all the increase in earnings appears to be unreal; but is it?

TABLE 9

	E_0 (i.e. current year)	E_{-1} (i.e. previous year)	$E_0 - E_{-1}$ (increase)
1951	0.1760	0.1620	0.0140
1952	0.1840	0.1760	0.0080
1959	0.2680	0.2560	0.0120
1969	0.4360	0.4160	0.0200
1970	0.2818	0.4360	-0.1542
1971	0.2985	0.2818	0.0167

Table 9 compares earnings per share at various times during the history of Standstill Ltd. It will be seen that earnings per share in 1951 were £0.014 greater than in 1950. This can be shown to be due to four separate causes:

1. The changing value of the monetary unit

It is obviously unfair to compare earnings of two years where those of one are measured in, say, 1950 £s and those of the other in 1951 £s if the value of money has changed. The first adjustment which needs to be made is to express both years' earnings in the same terms. This can be done by multiplying Year₋₁ earnings by:

$$\frac{P_0}{P_{-1}} \quad (35)$$

where

P_0 is the average of the index of retail prices for Year₀

P_{-1} is the average of the index of retail prices for Year₋₁

$\frac{P_0}{P_{-1}}$ for the model is $\frac{104}{100}$ throughout.²⁰

2. Loan Interest

In arriving at the earnings for 1950 the after tax cost of servicing the loan was deducted. This represents

²⁰ Accounting for Stewardship in a Period of Inflation regards the consumer price index as 'the most authoritative basis at present available for measuring the general price level'.

TABLE 8

	Return on net assets	Return on equity shareholders' funds	G
	PBIT/NA	E/SF	
1950	0.175	0.225	1.286
1951	0.186	0.243	1.306
1952	0.194	0.257	1.325
1953	0.203	0.171	1.340
1954	0.213	0.288	1.352
1955	0.222	0.303	1.365
1956	0.232	0.320	1.379
1957	0.242	0.337	1.393
1958	0.253	0.355	1.403
1959	0.264	0.373	1.413
1960	0.275	0.392	1.425
1961	0.286	0.408	1.427
1962	0.296	0.423	1.429
1963	0.306	0.438	1.431
1964	0.315	0.451	1.432
1965	0.326	0.467	1.433
1966	0.336	0.480	1.429
1967	0.346	0.492	1.422
1968	0.354	0.502	1.418
1969	0.364	0.514	1.412
1970	0.177	0.221	1.248
1971	0.185	0.234	1.264

KEY:

PBIT=profit before interest and tax

NA=net assets

E=total earnings

SF=shareholders' funds

$$\frac{\text{£40,000} - (\text{tax}) \text{ £16,000}}{500,000} = \text{£0.048}$$

per share. But the amount of interest paid does not increase with inflation (the debenture holders suffer and the company gains).

3. Depreciation

The plant cost £500,000 in 1950. The earnings of 1950 are stated after depreciation of £25,000. Since this is based on historical cost, it again does not increase with inflation. The effect on earnings per share is

$$\frac{\text{£25,000} - (\text{tax}) \text{ £10,000}}{500,000} = \text{£0.030}.$$

Thus earnings per share in 1951 would rise from these three causes to:

$$\text{£104 per cent of } (\text{£0.1620} + \text{£0.048} + \text{£0.030}) \text{ less } (\text{£0.048} + \text{£0.030}) = \text{£0.1716}.$$

4. Stock

Some of the goods sold in 1951 (at 1951 prices) were purchased or made in 1950 (at 1950 prices). As a result, the goods sold in 1951 cost £3,200 less than they would have if they had all been made at 1951 prices. The effect of this on earnings per share is

$$\frac{\text{£3,200} - (\text{tax}) \text{ £1,280}}{500,000} = \frac{\text{£1,920}}{500,000} = \text{£0.0038}.$$

Total earnings per share in 1951:
 $\text{£0.1716} + \text{£0.0038} = (\text{say}) \text{ £0.1760}^{30}$.

As is shown in Table 10, correction of the earnings per share for changes in the value of money removes a large part of the variation in earnings shown by the model. This element is obviously 'unreal' - in no sense can earnings of, say, £0.104 in 1951 be said to represent 'growth' over earnings of £0.100 in 1950 if the £ in 1951 is worth only $\frac{100}{104}$ of the £ in 1950.

But what of elements 2, 3 and 4: are they real from an investor's viewpoint?³¹

TABLE 10

	E_0	$E_{-1} \times \frac{P_0}{P_{-1}}$	$E_0 - (E_{-1} \times \frac{P_0}{P_{-1}})$ (i.e. difference remaining to be explained)
1951	0.1760	0.1648	0.0112
1952	0.1840	0.1830	0.0010
1959	0.2680	0.2662	0.0018
1969	0.4360	0.4326	0.0034
1970	0.2818	0.4534	-0.1716
1971	0.2985	0.2931	0.0054

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There can be no doubt that the gain from debenture interest is real: shareholders are gaining at the expense of debenture holders.

What about the stock gain?

Let us imagine that on 31 December 1950 the company had £104 in cash. If, on 31 December 1950 it bought £100 of stock it would retain £4 in cash. If, on the other hand, £104 in cash was retained through into 1951 it would only buy the same amount of stock in 1951 as £100 did in 1950. The purchase of £100 of stock on 31 December 1950 thus leaves the company with £104 worth of stock in 1951 £s and £4 in cash. It thus gains the company £4.

In this sense the stock gain is real. It is also real in the sense that it is in law (a) a distributable profit, and (b) a taxable profit.

What about depreciation?

In January 1950 the company purchased plant costing £500,000, which is being written off in the accounts at the rate of £25,000 per annum. One way of viewing this transaction is that the company paid in advance for the right to receive twenty years of machine service in 1950 £s: £25,000 for the right to each year's service.

The company laid out £25,000 in 1950 £s. £25,000 in 1950 £s represents $\frac{104}{100} \times £25,000$ in 1951 £s = £26,000. Earnings for 1951 thus include £1,000 less corporation tax £400, i.e. £600, due to the change in the real value of the depreciation charge. This represents an increase in earnings per share of £0.0012.

This increase in earnings, too, is real in the sense that British company law permits it to be paid out by way of dividend; indeed, it would be irrational for a company in the position of Standstill Ltd not to pay it out by way of dividend. But what about making a reserve for the increased cost of replacing the plant? it may be asked. Ought not Standstill Ltd to transfer sufficient each year to capital reserve to enable it eventually to replace its plant at its inflated cost?³² Despite Recommendation on Accounting Principles N15, paragraph 31(a), the logical answer is no. To begin in 1950 to retain profits in order to replace

³⁰ The unexplained difference is due to the rounding of figures in Table 5 to the nearest £1,000.

³¹ This analysis assumes that company accounts continue to be prepared on a historical cost basis; not necessarily that they should be.

³² The additional earnings which arise because the depreciation charge is expressed in current £s are in any case far less than is necessary to provide the additional funds required to meet the inflated cost. Thus Standstill Ltd benefits over the years in the form of earnings by about £165,000, i.e. £25,000 less corporation tax at 40 per cent $\times \{(1+i)^0 + (1+i)^1 + (1+i)^2 + \dots + (1+i)^{19}\}$, but it needs a total of £1,096,000 to replace its plant.

plant in 1970 is nonsense *provided* the company will be in a position in 1970 to raise the necessary additional capital, and all the evidence suggests that it will be.

Let us, for a moment, go outside the model and consider the general position of a company like Standstill Ltd with a complete plant, all of which will require to be replaced simultaneously at an inflated cost. If such a company sets aside profits to a reserve for the increased cost of replacement of fixed assets, there are in principle three things it can do with the 'money':

- (1) Nothing; i.e. allow it to lie idle in the bank, which is inexcusable.
- (2) Invest it; e.g. (i) in government securities; normally this will result in a lower rate of return than the company is earning on the remainder of shareholders' funds; or (ii) in the equity shares of other companies; unless the company is an investment trust this is not what it is in business to do.
- (3) Use it in the expansion of its own operations. If it does this, funds earmarked for providing the increased cost of replacing fixed assets will be tied up elsewhere, and the net result, whatever the balance sheet says, will be that the company has expanded out of retentions, not that it has made provision for the future replacement of its plant at inflated prices.

What can be learnt from the model?

To sum up what can be learnt from the model:

- (1) To form a realistic estimate of the growth in earnings per share it is necessary to adjust for changing price levels.
- (2) Companies like Standstill Ltd, which fail to grow in a turnover sense, may still show earnings growth due to the effects of inflation, caused by:
 - (a) fixed interest charges
 - (b) depreciation
 - (c) stocks
- This earnings growth will be greater in the first year of inflation than in later years.
- (3) If profits are retained to meet the increased cost of replacing the original plant:
 - (a) they will either become tied up in the expansion of operations; or
 - (b) $M \times S \times G \times T$ (the rate of return on ordinary shareholders' funds) will tend to fall.
- (4) If profits are not retained to meet the increased cost of replacing the original plant, a vast increase in share and/or loan capital will be required when that becomes necessary; and this is likely to result in depressed growth ratios like those seen in the model in 1970.

Can anything be extrapolated from the model?

It seems that:

(1) Continued inflation at 4 per cent per annum means that if plant replacement costs rise in step with prices generally, they will increase by a factor of 2.191 in twenty years. At higher average rates of inflation the progress of costs and prices is much more rapid.

<i>Rate of inflation</i>	<i>Costs multiply in twenty years by a factor of:</i>
4 per cent	2.191
5 per cent	2.653
6 per cent	3.207
7 per cent	3.870
8 per cent	4.661

During the last twelve months the index of retail prices has increased by 8½ per cent. The average for the past nine years has been approximately 4.2 per cent. So inflation cannot simply be ignored.

(2) Adjustment of the growth in the absolute value of earnings per share for the change in price levels (see Table 10) removes the 'unreal' element change due to inflation.

(3) It leaves a real gain due to the effect of gearing.

(4) It leaves a factor due to the effect of inflation on depreciation, but while in total the effect of this factor may be quite large (e.g. 1969 earnings of Standstill Ltd were £0.0332 (i.e. about 20 per cent) greater than those of 1950 because of the effects of the non-inflation of the depreciation charge) its effect on relative earnings per share from year to year is quite small.³³

(5) A company with a mixed plant of varying lives replaceable at various points of time will suffer from the same general problems, but their effects will be less obvious. Its capital requirements will tend to increase each year,³⁴ not once in twenty years like Standstill Ltd; there will not, therefore, be the sudden falls in ratios found in the model, though in general the ratios will all tend to be higher than they would be in a non-inflationary world, particularly asset value per share.

³³ Between 1950 and 1951:

$$\frac{0.0012}{0.1620} \times 100 = \text{about } 0.7 \text{ per cent}$$

³⁴ Net assets required may be considered to have two components: net current assets and net fixed assets. Net current assets are likely to rise at about the same rate as prices. Net fixed assets will rise as plant is replaced at inflated prices, but the effect is delayed; and its effects would continue to be felt long after inflation ceased. Note that it is net assets which need to increase in this way; shareholders' funds may need to expand faster than the rate of inflation unless more debentures/loan stock are issued. In general, if all prices rise uniformly, the retentions required to meet the increase in net assets are:

(continued overleaf)

Analysis of earnings per share growth in practice

To sum up thus far:

(1) In a non-inflationary situation earnings per share may rise for a combination of reasons. They represent:

$$M \times S \times G \times T \times A$$

all or any of which may improve and hence increase earnings per share. But only increases in A (asset value per share) represent a sustainable source of growth.

(2) In an inflationary situation increases in M, S, G and A may occur without growth in any real sense; and even if the company issues loan stocks, etc from time to time to maintain its gearing it will probably be necessary for asset value per share to rise as fast, or nearly as fast, as prices, *in order to stand still*.³⁵ If asset value per share fails to rise over the years one suspects either:

(a) failure to keep pace in an inflationary economy; or

(b) a situation similar to that of Standstill Ltd, where replacement of plant is not occurring regularly and the depreciation element of the cash flow is thus available to enable the volume of net current assets to be maintained at inflated prices. One is then on warning that such a situation cannot persist indefinitely.³⁶

(3) There is no way in which an investment analyst in analysing changes in earnings per share can with any accuracy separate the real improvements in M, S, and G from inflationary effects; or in-

(Footnote 34 continued)

$$E_0 \times \frac{C_0 - 1}{C_0} = \frac{P_0}{P_{-n}} (FA_{-n}) + \frac{P_0}{P_{-1}} (NCA_{-1}) - DPN_0 \quad (36)$$

where P_0 = the index of retail prices in Year₀

P_{-1} = the index of retail prices in Year₋₁

P_{-n} = the index of retail prices in Year_{-n}, the year in which the assets to be replaced were purchased

FA_{-n} = the cost in Year_{-n} of those assets

NCA_{-1} = net current assets in Year₋₁

DPN_0 = depreciation charge in Year₀

That is to say, unless more loan stock or debentures are issued, ordinary shareholders' funds must increase in any year in which:

$$\frac{P_0}{P_{-n}} (FA_{-n}) + \frac{P_0}{P_{-1}} (NCA_{-1}) > DPN_0 \quad (37)$$

³⁵ Property values have tended to rise if anything faster than prices. The effect of freehold and long leasehold premises on asset value cannot, therefore, be ignored. If properties are written up to current values, the profit being transferred to capital reserve, this element of net assets will rise at least as fast as prices generally. If, on the other hand, properties continue to be carried in the balance sheet at cost, this will obviously tend to make the rise in asset value per share slower.

³⁶ Technological improvements in plant and machinery can, of course, reduce the investment (in real terms) required to support a given volume of sales, so these suspicions may at times be unfounded.

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creases in A which represent a real growth in assets from those required as a result of inflation.

(4) But he can, and should, when comparing earnings per share of one period with those of another, extract that element which merely reflects a change in the value of the £.

(5) His aim is to estimate the rate of sustainable growth. In a period of inflation only those increases in asset value in excess of those necessary to cover inflation provide a source of sustainable growth.

Earnings per share growth analysis in practice

Table 11 shows an analysis of earnings per share growth for three stores companies: Woolworths, Marks and Spencer and Tesco. Certain differences between the three companies are immediately apparent; for instance, Woolworth's earnings per share fell in 1969 even before adjustment for changing prices. Those of both Marks and Spencer and Tesco grew.

The ratios which form the background of the earnings per share pinpoint a number of interesting differences between the companies.

Marks and Spencer and Woolworth have much the same profit/sales ratio (M) (about 13 per cent), but whereas Marks and Spencer not only held theirs but slightly improved it, Woolworth's deteriorated a little in 1968 and much more sharply in 1969. Tesco's profit/sales ratio (largely in retail grocery) is much lower (between 5 per cent and 6 per cent). It, too, is falling.

Another striking difference between Tesco on the one hand and Marks and Spencer and Woolworth on the other is in asset turnover (S): Marks and Spencer and Woolworth is about 1.8 times to Tesco's 6 to 7 times per annum.

If, as Mr Babcock believes, growth in asset value per share is the only source of sustainable growth, Woolworth would be out of the running in the growth stakes even in a stable economy. Asset value has risen by an average of only 1.3 per cent per annum. Marks and Spencer, too, have shown little expansion in this direction: their asset value per share has grown by an average of only 3.6 per cent per annum in the last two years, and at first sight it might seem that most of this must have been absorbed by inflation. In fact, unless one looks at the Marks and Spencer balance sheet itself, it is easy to get an entirely false picture. Of net assets of £188.252 million at 31 March 1970 net current assets make up only £20.535 million (stocks are £24.879 million) whereas fixed assets and investments total £167.899 million, of which £152.913 million is properties, over 60 per cent at a 1964 valuation. Thus the ex-

TABLE 11

	F. W. WOOLWORTH & CO LTD			MARKS & SPENCER LTD			TESCO STORES (HOLDINGS) LTD		
	Year ended 31 December			Year ended 31 March			Year ended 28 February		
	1967	1968	1969	1968	1969	1970	1968	1969	1970
EARNINGS PER SHARE:	0.05438	0.05460	0.05008	0.09291	0.10058	0.11535	0.01964	0.02231	0.02725
Rate of growth in earnings per share unadjusted for changes in price level		+0.40%	-8.28%		+10.83%	+14.68%		+13.59%	+22.14%
DATA:		£m	£m	£m	£m	£m	£m	£m	£m
Sales	272.000	295.800	311.700	282.300	317.300	360.900	136.323	191.405	238.427
Profit before tax and interest	36.537	38.911	36.330	35.459	40.255	46.419	8.363	10.267	12.602
Profit before tax after interest	36.537	38.911	36.330	33.871	38.123	43.705	8.363	10.267	12.558
Earnings	20.555	20.639	18.932	20.016	21.668	24.850	4.581	5.468	6.680
Net assets	160.100	165.300	166.200	169.888	173.655	188.252	17.874	31.979	35.970
Equity shareholders' funds	141.700	144.200	145.300	114.788	118.445	123.152	17.099	19.980	33.668
Number of ordinary shares (m)	378.000	378.000	378.000	215.436	215.436	215.436	233.250	245.106	245.185
RATIOS:									
M	0.1343	0.1315	0.1166	0.1256	0.1269	0.1286	0.0613	0.0536	0.0529
S	1.6989	1.7895	1.8755	1.7656	1.8272	1.9171	7.6269	5.9853	6.6285
G	1.1299	1.1463	1.1438	1.3306	1.3884	1.4392	1.0453	1.0667	1.0647
T	0.5633	0.5304	0.5211	0.5909	0.5684	0.5686	0.5478	0.5331	0.5319
A	0.3749	0.3815	0.3844	0.5328	0.5498	0.5716	0.0735	0.1223	0.1373
E	0.05438	0.05460	0.05008	0.09291	0.10058	0.11535	0.01964	0.02231	0.02725
$\frac{P_0}{P_{-1}}$ (Estimated mid-accounting-year averages)	125.0	131.8		126.4	133.2		125.7	131.8	
	119.4	125.0		120.0	126.4		120.0	125.7	
$E_{-1} \times \frac{P_0}{P_{-1}}$	0.05693	0.05757		0.09786	0.10599		0.01964	0.02231	
$E_0 \times \frac{P_0}{P_{-1}}$	0.9591	0.8698		1.0278	1.0883		0.02057	0.02339	
Rate of growth in earnings per share adjusted for changes in price level	-4.09%	-13.02%		+2.78%	+8.83%		+8.46%	+16.50%	

pansion of the asset base required to meet inflation is quite small; and whereas in general an increase in S must be viewed as a non-sustainable source here much of the increase is due to sales increasing with inflation while property assets have remained at their 1964 balance sheet value, and is thus a form of built-in protection against inflation.

Tesco have expanded assets per share vigorously. They jumped from £0.0735 in February 1968 to £0.1223 at 28 February 1969, partly as a result of the issue of nearly 12 million 1s shares at a premium of 14s a share, and partly as a result of retentions: the payout ratio in 1968/69 was only 41 per cent.

Let us look at what happened the following year: asset value per share rose between 1969 and 1970 from £0.1223 to £0.1373, i.e. by £0.0150, or 12 per cent. Part of this increase was the result of the issue of 78,780 shares under a staff option scheme. A further £0.00146 was the surplus on disposal of fixed assets transferred to capital reserve and is thus non-sustainable. Retentions, the basis of sustainable growth, accounted for £0.0135, the growth in the

asset base from retentions being about 11 per cent. In the ordinary way a good deal of this would be swallowed by inflation of the net current assets, but Tesco is peculiar in that its net current assets are like Marks and Spencer's only more so, negative (current assets £31.277 million; current liabilities £36.747 million, at 28 February 1970). Tesco purchases goods on credit and sells them for cash long before it has to pay for them. The entire 11 per cent, therefore, probably represents sustainable earnings growth.

Woolworth, on the other hand, have almost ceased to grow from retentions. In 1969, for instance, Woolworth paid a dividend of £0.05 per share, out of earnings of £0.04747 per share, and even Marks and Spencer paid one of £0.09375 out of earnings of £0.11535 per share, retaining only £0.02160.

It seems from this that Woolworth fail to qualify at present as a growth stock. Marks and Spencer are showing real growth of about 6 per cent on the basis of the last two years, and Tesco about 11 per cent. There is a suggestion that both these figures may be

under-estimates, since each company's growth is showing an upward trend.

Earnings growth adjusted for inflation as a basis of share prices

Gathering the threads of the argument:

(1) The market price of a share may be regarded as the present value of the market's expectation of the future dividends from that share, which is largely dependent on future earnings per share. [See equations (7), (8) and (9).]

(2) A current dividend yield less than that available from fixed interest investments of comparable risk is warranted only if earnings, and hence eventually dividends per share and/or market price, are expected to grow.

(3) There are a number of sources of growth of earnings per share [see equations (25) and (33)] but the only source of sustainable growth is growth in asset value per share. [See equations (31) and (32).]

(4) In an inflationary period growth cannot be measured simply by comparing earnings per share of one year with those of another; adjustment must be made for changing price levels. [See equation (35).]

(5) This will not remove *all* the effects of inflation. Under present accounting conventions earnings per share rise somewhat with inflation even if adjustment is made for changes in price levels.

What the investor is looking for is growth in earnings per share adjusted for changes in price levels which is not just a flash in the pan but sustainable in the medium and long term.

Asset value per share is also relevant in so far as assets are necessary to support the level of trade called for in the growth projection (*g*).

What the investor is endeavouring to measure in *g* is the ability of a company to grow in real terms in a time of inflation. It is this ability for which he pays in an enhanced P/E ratio.

The effects of taxation

In the analysis so far, the effects of taxation have been entirely ignored. This is unrealistic, so let us look again at formula (9). We will begin by considering the fixing of an investor's rate of return *r*, and, in particular, the alternatives to investment in equities.

One obvious alternative is a bank deposit account. Over the years 1967-70 inclusive the rate of interest on deposit accounts changed a number of times, but it averaged just over 5 per cent gross, or approximately 2 per cent after tax at the standard rate. During that same period the index of retail prices rose by just over

5 per cent per annum. In real terms, therefore, a depositor in a bank deposit account had a negative rate of 'growth return' of about -2 per cent. And this is typical of post-war experience: after tax the income from most fixed interest sources has been insufficient to make good the capital lost through inflation.³⁷ This is a main cause of the disenchantment with fixed interest stocks which has become ever more apparent over the past twenty years, one result of which has been a dramatic fall in the market prices of fixed interest securities, making them an even less attractive alternative to equities. Quite apart from the after tax return from fixed interest securities often being less than the rate of inflation the capital value of such investments has shrunk, even in current £s.³⁸

Disregarding negative rates as unrealistic, let us assume that the long term rate of interest on fixed interest stocks is (and I do not believe it to be any higher than this) about 1 per cent in real terms; it then seems that the minimum *after tax* growth return which should be sought by an equity investor is in the region of 2½ per cent, *provided* that the growth return is corrected for inflation.

Now it is entirely right and proper for an investor, whether in gilts or equities, to look from time to time at his net rate of growth return after extracting the inflationary element from earnings.³⁹ But it is only correct to modify formula (9) like this, and to use the growth rate adjusted for inflation (*g*₁) and the individual's net growth yield adjusted for inflation (*r*₁):

$$V = \frac{E}{C(I - T_1)} \left[\frac{(1+g_1)}{(1+r_1)} + \frac{(1+g_1)^2}{(1+r_1)^2} + \frac{(1+g_1)^3}{(1+r_1)^3} + \frac{(1+g_1)^4}{(1+r_1)^4} \dots \frac{(1+g_1)^n}{(1+r_1)^n} + \frac{(1+g_1)^n}{r_1} - \frac{(1+g_1)^n}{(1+r_1)^n} + \frac{(1+g_1)^n}{(1+r_1)^2} + \frac{(1+g_1)^n}{(1+r_1)^3} + \frac{(1+g_1)^n}{(1+r_1)^4} \dots \frac{(1+g_1)^n}{(1+r_1)^n} \right] \quad (38)$$

where

*T*₁ is the investor's marginal rate of tax on income expressed as a decimal

*g*₁ is the 'real' growth of dividends

*r*₁ is the after tax return required

³⁷ 'The real return from fixed interest stocks will be eroded by inflation, being approximately their yield to maturity, net of tax at the investor's marginal rate, less the average annual rate of inflation.' *What Level for Share Prices?*, John Whittaker, Lloyds Bank Review, January 1968.

³⁸ For instance 2½ per cent consols, which in the middle 1940s stood around par, now stand at about 28.

³⁹ And to look carefully at any investment which is failing to keep pace.

– it is only correct to do this if either the investment will be held in perpetuity or there is no tax on capital gains.

If the investment is expected to be sold during the growth period equation (9) can be re-expressed as:

$$V = \frac{E}{C} \left\{ \frac{(1+g)}{(1+r)} + \frac{(1+g)^2}{(1+r)^2} + \frac{(1+g)^3}{(1+r)^3} \dots \frac{(1+g)^s}{(1+r)^s} \right\} + \frac{P_s}{(1+r)^s} \quad (39)$$

where

s is the number of years for which the investment is held; and

P_s is the proceeds of sale;

or, in net terms,⁴⁰

$$V = \frac{E}{C(1-T_1)} \left\{ \frac{(1+g)}{(1+r_1)} + \frac{(1+g)^2}{(1+r_1)^2} + \frac{(1+g)^3}{(1+r_1)^3} \dots \frac{(1+g)^s}{(1+r_1)^s} \right\} + \frac{P_s - T_c(P_s - V)}{(1+r_1)^s} \quad (40)$$

where T_c is the investor's rate of tax on capital gains.

Let us now see how this affects an investor in a period of inflation. A zero rate of 'real' growth (g_1) (measured *after* allowing for changes in the value of money) will be sufficient to ensure that the value of the dividend stream will be maintained in real terms. Since the value of an investment is the present value of the future dividend stream, this might appear sufficient to maintain the value of the investment itself in real terms: but it is not.

Equation (40) can be modified to take account of a fixed rate of inflation (i) where (g_1) is the growth after extracting the inflationary element:

$$V_R = \frac{E}{C(1-T_1)} \left\{ \frac{(1+g_1)(1+i)}{(1+r_1)(1+i)} + \frac{(1+g_1)^2(1+i)^2}{(1+r_1)^2(1+i)^2} + \frac{(1+g_1)^3(1+i)^3 \dots (1+g_1)^s(1+i)^s}{(1+r_1)^3(1+i)^3 \dots (1+r_1)^s(1+i)^s} \right\} + \frac{P_s(1+i)^s - T_c \{ P_s(1+i)^s - V_R \}}{(1+r_1)^s(1+i)^s} \quad (41)$$

where

V_R is the present value in current (Year₀) £s; and P_s is the estimated proceeds of sales in Year_s £s;

and this can be simplified to:

$$V_R = \frac{E}{C} (1-T_1) \left\{ \frac{(1+g_1)}{(1+r_1)} + \frac{(1+g_1)^2}{(1+r_1)^2} + \frac{(1+g_1)^3}{(1+r_1)^3} \dots \frac{(1+g_1)^s}{(1+r_1)^s} \right\} + \frac{P_s - T_c P_s}{(1+r_1)^s} + \frac{T_c V_R}{(1+r_1)^s(1+i)^s} \quad (42)$$

The sting is in the tail: as the rate of inflation increases and the sale proceeds in Year_s prices rise, so does the capital gains tax charge which is based on a comparison of $P_s(1+i)^s$ (i.e. of the sale proceeds in Year_s, £s) with the cost (V_R) in Year₀, £s.

Conclusion

Thus if an investor is to protect himself against the effects of inflation, it is not sufficient for him to find *any* company whose earnings per share are growing. It is not sufficient for him to find one whose earnings per share are likely to be maintained after adjustment for the change in price levels. This will be sufficient to safeguard his income in real terms, but when he comes to sell, his sale proceeds will be eroded by capital gains tax. Indeed, he has to run (i.e. to find a share which will *grow in real terms*) in order to stand still.

The temptation, therefore, is to chase the high-flier, and to invest in companies which are able to exhibit an upward trend in real earnings after allowing for the effects of changing price levels. There are, of course, those who deny that there is any consistency in growth. Foremost among these are I. M. D. Little and A. C. Rayner. Interest in the matter was first aroused by Mr Little's article 'Higgledy Piggledy Growth' in the Bulletin of the Oxford University Institute of Economics and Statistics, November 1962. Further work on the problem was done by Mr A. C. Rayner.⁴¹ To the accountant, investment analyst and the investor Little and Rayner make interesting, but extremely depressing reading. They claim to have shown that 'earnings growth occurs in an almost purely random manner'; they ask whether one can avoid 'the startling conclusion that there is no such thing as good and bad management, and that those firms which are thought to be well managed are in fact luckily managed?' To believe this is to remove one of the main pillars on which rational investment is based; so, although their findings are by now well known, the market and most investors continue to ignore them. Investors still have faith in 'growth stocks'. They are still willing to forego a considerable amount of income in the belief that the market price of their investments will rise in the future, though if Little and Rayner are right then everyone is wasting his time. There is, of course, a chance that things have changed; that growth, which is affected by many factors other than

⁴⁰ In *Valuation of Ordinary Shares* (Gower Press, London), 1970, A. J. Merrett provides a series of valuation of equity charts (VEC) which give the price at which shares would have to be purchased; if, over a *five year period* they were to break even with specific alternatives, such as fixed interest securities. That is to say, he standardises on an *s* of five years. To use the VEC it is necessary to predict (i) the growth of capital employed; (ii) the rate of return on capital employed; (iii) any gearing changes; and (iv) the P/E ratio at the time of sale, five years hence, none of which is particularly easy.

⁴¹ *Higgledy Piggledy Growth Again*, by I. M. D. Little and A. C. Rayner, Blackwell 1966.

management, is sometimes predictable and sometimes not. Certainly the market acts out its own faith in investors' ability to see growth continuing into the future.

But the snag, as any technical analyst will tell you, is that 'a trend goes on until it stops'. When a growth stock stops growing, or the market thinks it has or will, the fall in the P/E ratio (and hence in the share price) can be very sharp indeed. 'In envisaging industry prospects the analyst must beware of worshipping what may prove to be, in Francis Bacon's phrase, the "idols of the market place". The payment of an exceedingly liberal price for an expected future improvement – in the form of a very high multiplier of past or present earnings – is hardly a businesslike procedure. The investor should expect to be re-

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warded for his own good judgement when the improvement he anticipated is realised. But if the price he pays today already reflects tomorrow's performance, the best he can hope for is not to lose. In view of the hazards of the future, that would be a bad bargain.'⁴²

Earnings per share figures do not take the skill out of investment. They do not remove the fun. They certainly cannot prevent mistakes, though they may make them apparent more quickly. But in many ways they provide a better investment yardstick than either pre-tax or after tax profits; and they are a central factor in the search for growth.

⁴² Graham, Dodd and Cottle, *ibid.*, page 521.

A look at the merger movement in the United States from its beginnings in the early 'fifties to its peak in 1968.

Conglomeration: Growth and Techniques

Reuben E. Slesinger

The current merger movement that began about 1950, moved to a high level of activity between 1955 and 1965, and took off tremendously between 1965 and 1968, is unique in many ways.¹ To begin with, its duration is the longest of any of the merger movements in the nation's history. It is also unique in its tempo, especially in the last three to five years, reaching all-time highs not only in numbers of firms but also in assets acquired. The most important aspect of the current movement is the types of mergers. Earlier movements consisted primarily of horizontal and vertical mergers. Although there was some conglomerate activity, this was the exception rather than the rule.

The current merger movement is clearly increasingly conglomerate in nature. From 1941 to 1951 horizontal mergers accounted for 41.4 per cent of the total number completed. In 1968 they accounted for only 3.7 per cent. During the same period verticals dropped from 20.5 to 6.4 per cent. Conglomerates, however, rose from 38.1 to 89.9 per cent of the total.²

Definitions

The Federal Trade Commission defines a conglomerate as a firm that is engaged in a number of industrial activities serving more or less distinct markets. The less a firm is dependent on any one or few lines of activity for its economic welfare and the longer and wider its number of product* or geographic markets,† the more conglomerated its character.³

¹ Harrison F. Houghton, 'The Federal Trade Commission's In-Depth Investigation of the Conglomerate Merger Movement', delivered before a seminar on 'New Developments of Mergers and Acquisitions', Advanced Management Research, Inc., New York, 19 September 1968, pp. 3-5.

² *Ibid.*, p. 11.

³ Commonly considered as the scope of its relevant product market.

⁴ Refers to the spatial competitive aspects of market structure.

⁵ *Ibid.*, pp. 5-6.

The FTC classifies conglomerates into three categories: market extension, product extension, and other. Market extension mergers are those in which the firms involved are in the same general line of business, but operate in different geographical markets. Product extension mergers represent an extension of a firm's activity into a new product line, but one that is related functionally in production, distribution, or sales of the products. (These types are also called circular or lateral.) The 'other' category of conglomerates, pure conglomerates, includes those in which there is little discernible relationship between the merging firms.⁴

Although the main thrust of this paper applies to all three types of conglomerate mergers, the major purpose is to construct a model of conglomerate theory that is specifically applicable to the pure conglomerate merger. Pure conglomerates accounted for about 21.1 per cent of the total number of mergers in the 1964-7 period, but in 1968 the percentage rose to 59.5 per cent.⁵ The theory set forth in this paper about the pure form of conglomeration can be applied to a lesser extent to the imperfect forms of conglomerate merger.

Nature of the study

A first consideration is the argument that anti-trust legislation and the increasingly specific nature of administrative and judicial interpretations have forced merger-minded companies toward the conglomerate direction. The traditional arguments for mergers in general and conglomeration in particular will also be reviewed. These arguments include economies of scale, centralisation of management services, use of common distribution facilities and channels, and the like.

The hypothesis of Reid that the pure conglomerate

⁴ Victor Kramer, *et al.*, 'Conglomerate Mergers: Pro-Competitive and Anti-Competitive Effects', remarks given at a legal seminar in mid-1967

⁵ Houghton, *op. cit.*, p. 12.

merger is motivated mainly by the interests of the managers, rather than matters of corporate efficiency and stockholders' interests is also discussed.

Consideration of the accounting techniques utilised in conglomerate mergers and their contribution to a conglomerate theory follows next. The relationship and implications of price and earning ratios in mergers is also considered.

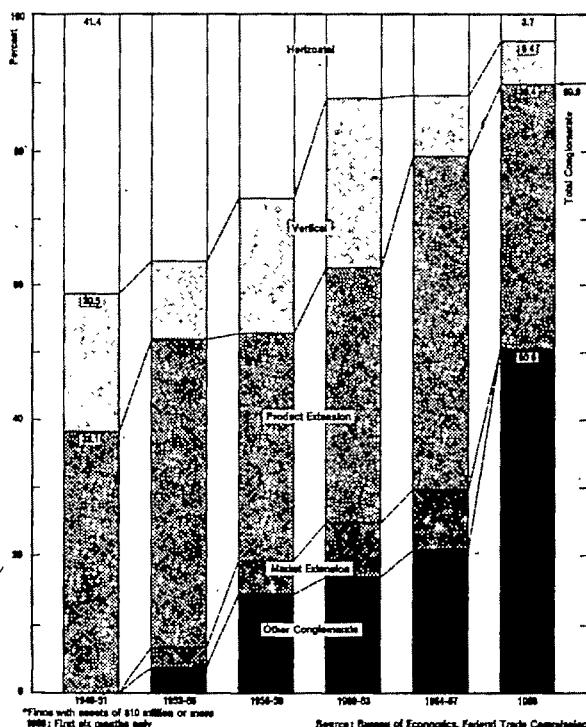
The analysis to this point is limited to a survey of existing material about the theory of conglomeration. From this point a discussion of the relationship between the rate of growth in assets versus the absolute size of the corporate assets follows. A theory of corporate consolidation will be advanced to explain the fluctuations in growth rates.

Finally some observations are included concerning the future of the conglomerate merger movement.

MOTIVATIONS FOR CONGLOMERATE COMBINATIONS

The current merger movement is the product of many forces. The direction of anti-trust merger law explains a substantial part of the conglomerate nature of the current merger movement. A variety of economic reasons explain the corporate desire to diversify. Diversification via the merger route can be accounted for to a large extent by a combination of investment reasons and managerial interests.

Figure 1
Distribution of total acquired assets on large mergers by type, 1948-1968



Anti-trust motivations

Though anti-trust policy is geared to the promotion of competition and the restraint of monopolisation tendencies, ironically enough it appears as if one of the basic underlying motivators of the conglomerate movement is anti-trust policy. The decline in horizontal and vertical mergers and the increase in conglomerate mergers is not unrelated to recent FTC and Department of Justice challenges and opinions. As Table 1 indicates, the tempo of challenges until very recently has been substantially less in the conglomerate area than any other merger technique. The number of challenges as a percentage of the total during the period 1950 to 1966 is only 3.6 per cent for conglomerates as against 17.2 per cent for verticals and 25.8 per cent for horizontals. Accordingly, as is evident in Fig. 1, the greatest relative decrease of merger activity is in the horizontal area. Verticals decreased substantially, but conglomerates increased almost 150 per cent.⁶

The recent Proctor and Gamble decision⁷ has done much to set guidelines for considering product extension mergers, but these guidelines are sufficiently broad and permissive to allow substantial merger activity to continue in the product extension area. Public policy, as set forth in anti-trust legislation, however, has almost nothing to say about the pure conglomerate merger. Indeed, until the broadened interpretation of the 1950 amendment to the Clayton Act few conglomerates would have been challenged. Prior to 1950, the area of competition was limited strictly to that between the acquired and the acquiring firms. It is only in the last ten years or so that competition has been interpreted broadly to include any plane of competition - suppliers, buyers, etc. - that is affected by the merger.

'Economic' motivations

The economic reasons for diversification play a substantial role in encouraging corporate diversification. A firm with a cyclical demand may attempt to stabilise its earnings by expanding into a market with substantially less cyclical, or even countercyclical, earnings patterns to the parent company. A rationale for acquisition rather than internal diversification may be the scarcity of management which is skilled in the area of the contemplated diversification. Furthermore, acquisition does not result in increased market competition since no firms are created, only ownership is changed; whereas internal diversification creates another market competitor.

A firm with slow potential or declining growth

⁶ Kramer, *op. cit.*, p. 5.

⁷ *Federal Trade Commission v The Proctor & Gamble Co*, US (11 April 1967), 87 Sup. Ct. 1224.

may use the merger route to move into areas that offer the stockholder a more reasonable return on his investment.⁸ A firm in an industry with stagnant technology may diversify into a technologically advancing industry in order to obtain and retain research and development personnel. Furthermore, a firm may seek to merge with a firm which exhibits related technology in order to gain control of superior technological abilities or new processes, such as the attempt of the Aluminium Company of America to gain knowledge about copper through the acquisition of Rome Cable (but declared by the Supreme Court as void). The rapid advances of technology make the merger route to diversification more attractive because of the time required for internal expansion. Acquisition permits a firm to avoid much of the initial start-up costs of a new operation. Furthermore, until expansion has been completed, potential markets may have already been effectively foreclosed by the com-

acquired firm. This rationale applies equally to horizontal, product extension, and market extension mergers.¹¹

Advantages of centralised management and common corporate services may provide other justifications for conglomerate mergers. For example, the conglomerate may be able to retain full-time legal, marketing, or other specialised staffs whereas an individual firm could not efficiently utilise such full-time staffs, because of the indivisibilities of their kinds of services and the limited requirements for them.

Conglomerate headquarters generally provides central financing services for the individual divisions. Working capital requirements for the large firm may be considerably less than the sum of these requirements if the component firms were separate. Furthermore, savings in capital costs are virtually assured when a small firm is absorbed by a larger firm. The

TABLE 1

Comparison of total 'large' acquisitions which have been challenged with total 'large' acquisitions, 1951-1966
(all dollars in millions)

Size class of acquiring company ¹	Total no. of acq. by cos. in size class ²			Total assets of acq. companies			No. of acquisitions challenged ³			Challenged as percent of total			Assets of challenged acquisitions			Challenged as percent of total		
	Hor.	Ver.	Cong.	Hor.	Ver.	Cong.	Hor.	Ver.	Cong.	Hor.	Ver.	Cong.	Hor.	Ver.	Cong.	Hor.	Ver.	Cong.
1,000 & Over	21	27	44	1,979	1,176	3,034	7	4	4	33.3	14.8	9.1	1,611	169	433	81.4	14.4	14.3
250-1,000	38	63	122	1,297	2,791	5,940	7	9	6	18.4	17.0	4.9	136	779	216	10.5	27.9	3.8
100-250	39	31	187	1,603	1,257	5,185	19	8	6	48.7	25.8	3.6	475	719	132	29.6	57.2	2.6
50-100	34	15	89	953	409	2,297	7	2	4	20.6	13.3	4.5	215	33	211	22.4	8.1	9.2
Under 50 ⁴	54	19	168	1,164	337	3,923	8	2	1	14.8	10.6	0.6	165	11	18	13.3	3.3	0.5
Total	186	145	590	7,005	5,970	20,379	48	26	21	25.8	17.2	3.6	2,592	1,711	1,010	37.0	28.9	5.0

Note: These comparisons include only acquisitions wherein the required companies had assets of \$10 million or more.

¹ Size of acquiring company in 1965.

² These are the acquisitions shown in Table 5.

³ These are the challenged acquisitions shown in Table 5.

⁴ Includes one acquisition for which asset size of acquiring company not known.

Source: Bureau of Economics, Federal Trade Commission. See Appendix Tables 7 and 8.

petitors. In this manner, acquisition substantially reduces some of the risks inherent in internal diversification.⁹

A major reason for diversification, though not necessarily via the merger route, may be the desire to utilise excess capacity. When productive facilities are only partially utilised, a strong encouragement exists for expansion into related product areas. Management may also wish to take advantage of economies of scale and utilise excess capacity of raw materials, managerial talent, capital resources, and an established marketing system.¹⁰

A firm may wish to diversify by rounding out a product line to make fuller use of existent marketing channels or to get access to the channels of the

larger firm generally has better access to the money markets and can enjoy economies of large-scale purchases of capital. For example, in 1957, the average interest rates for firms possessing less than \$50,000 in assets was 6.5 per cent. This rate drops down steadily to 4.4 per cent for firms of \$100 million and more.¹² The very fact that a firm is diversifying may reduce risk enough in the eyes of the lender so the reduced interest rates may be offered.

Diversification may provide savings in promotional costs. These savings may appear as: (a) substantial quantity discounts from advertising media, (b) relatively more efficient promotional techniques resulting from the expenditure of larger funds; and (c) the pulling power of national trademarks which may be

⁸ Gene P. Brady, 'Conglomerates', *The Wall Street Transcript*, 23 September 1968, p. 14, 426.

⁹ Ibid., p. 14, 426.

¹⁰ M. James and D. Jeanne Patterson, 'Conglomerates: The Legal Issues', *Business Horizons*, Vol. 11, No. 1, February 1968, pp. 41-2.

¹¹ Ibid., p. 41.

¹² Donald F. Turner, 'Conglomerate Mergers and Section 7 of the Clayton Act', *Harvard Law Review*, Vol. 78, No. 7, May 1965, p. 1338.

transferred to the product of the acquired firm.¹³

Financial or investment motivations

The marriage of two diverse firms may also be encouraged by financial considerations. For example, the acquiring company may buy a controlling or substantial interest in another firm with the hope of selling this interest later at a profit. During the period of the marriage, if controlling interest has been obtained, the acquiring company may utilise the assets, working capital, managerial talent, etc., of the company in other areas of operation. This case is not typical, however, of the true conglomerate which generally seeks 'permanent' marriages. Cash flow and tax considerations may be considered as financial stimulants to combination. A cash-starved conglomerate may seek out potential partners on the basis of a strong cash position. If the combination is completed through an exchange of stock, the acquiring company conserves its cash and acquires the excess cash of the new partner for further acquisition. A conglomerate may also seek out a poorly managed firm which is viewed as having considerable potential, but has had several bad years that can be applied as a tax credit to the acquiring company.

It is unlikely that the above considerations alone would be enough to be determining factors as to whether the merger route to diversification is followed. Once the decision is made, however, to use the acquisition route, these above factors may well determine the firms to be considered as potential partners.

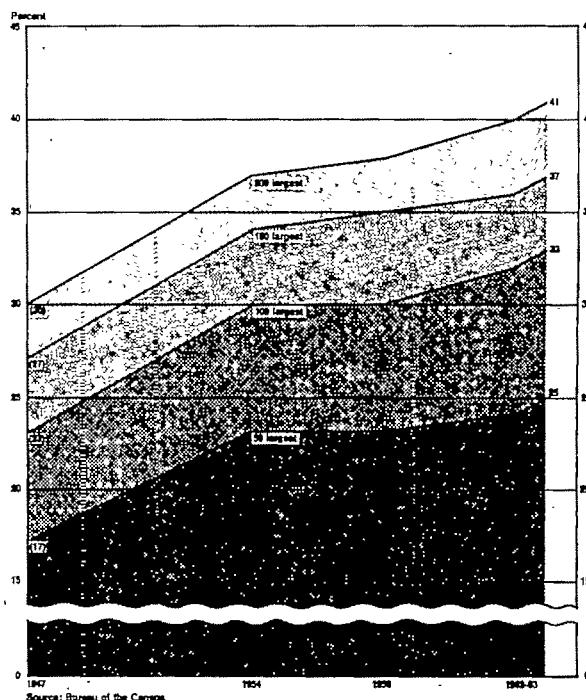
Managerial motivations

There is considerable research which suggests that there may be a divergence of interests between management and stockholders. This divergency was suggested by Berle and Means in 1929 in the form of three hypotheses.¹⁴ They first suggested that there was an increasing concentration in the economic and financial structure of the American economy. This tendency is supported by FTC analysis of trends in aggregate concentration in the postwar period. Fig. 2 indicates that over the period from 1947 to 1963, the top 200 manufacturing corporations increased their share of value added from 30 to 41 per cent. The rate of increase in aggregate concentration since 1958 has been about 0.6 per cent per year. In 1963, the 100 largest firms held a greater share of value added than the 200 largest in 1947.¹⁵ Concentration

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Figure 2

Share of value added by manufacture accounted for by 200 largest manufacturing companies, 1947-1963



measured in terms of total assets is even more spectacular as Table 2 indicates.

TABLE 2
Concentration of Total Manufacturing Assets
- 1950 and 1965

Corporate Size Group	Per cent of Total Assets	
	1950	1965
5 Largest	9.6	11.8
10 Largest	14.5	18.0
20 Largest	20.7	24.6
50 Largest	30.2	36.2
100 Largest	38.6	45.4
200 Largest	46.7	55.4

Source: Bureau of Economics, Federal Trade Commission as contained in a speech by Dr Willard F. Mueller before the Senate Select Committee on Small Business, 15 March, 1967.

The second Berle and Means proposition emphasised increased separation of control from ownership. This implies a growing separation of management and stockholder interest. The third proposition related this growing separation to changing managerial goals and behaviour.

¹³ *Ibid.*, p. 1332.

¹⁴ Adolf A. Berle, Jr, and Gardiner C. Means, *The Modern Corporation and Private Company*, New York: The Macmillan Company, 1932.

¹⁵ Willard F. Mueller, 'The Celler-Kefauver Act: Sixteen Years of Enforcement', paper presented at the Seminar in Economics and Business, Graduate School of Business Administration, The University of North Carolina, Chapel Hill, North Carolina, 8 March 1967, p. 20.

Management's interest in personal security, power, prestige, income, and advancement within the firm might well result in an increasing emphasis on growth and maximisation of size rather than the classical objective of profit maximisation.¹⁶ Baumol has suggested that the goal of management may be to maximise total revenue subject to a profit constraint.¹⁷ McGuire, Chiu, and Elbing conducted a statistical investigation of the correlations between executive incomes, sales, and profits for 48 of the largest 100 industrial corporations in the United States from 1953 to 1959. They found that '... the evidence presented would seem to support the hypothesis that there is a valid relationship between sales and executive incomes as Baumol assumed, but not between profits and executive incomes'.¹⁸ Further studies by Patton,¹⁹ Roberts,²⁰ and Parkinson²¹ indicate a similar relationship.

Reid tested the general hypothesis that: 'The more actively that large, publicly held firms merge, the more they tend to be oriented to furthering managers' interests, rather than stockholders' interests'.²² He used a sample of 478 large industrial firms in the United States between 1951 and 1961. Six variables were analysed for this group of firms: three representing managerial interests and three representing stockholders' interests. The managerial interest variables were relative growth in sales during the period; relative change in assets during the period; and relative number of employees during the period. The stockholders' interest variables were relative change in market price/share of common stock adjusted for splits and stock dividends during the period; the increase in the per share profits from time $T-1$ to time T ; and, the same variable except taken in relation to sales in time period $T-1$.

The data indicated that the more actively a firm tends to expand via mergers, the more it tends to further the self-interests of the managers as opposed to the interests of the stockholders. This conclusion is one of the most potentially significant findings

¹⁶ Samuel Richardson Reid, *Mergers, Managers and the Economy*, New York: McGraw-Hill Book Company, 1968, p. 134.

¹⁷ William J. Baumol, 'On the Theory of the Expansion of the Firm', *American Economic Review*, Vol. 52, No. 5, December 1962, p. 1085.

¹⁸ Joseph W. McGuire, John S. Y. Chiu, and Alvas O. Elbing, 'Executive Incomes, Sales and Profits', *American Economic Review*, Vol. 52, No. 4, September 1962, p. 760.

¹⁹ Arch Patton, 'Deterioration in Top Executive Pay', *Harvard Business Review*, Vol. 43, No. 6, November-December 1965, p. 106.

²⁰ D. R. Roberts, *Executive Compensation*, New York: The Free Press of Glencoe, 1959.

²¹ C. Northcote Parkinson, *In-Laws and Outlaws*, Cambridge, Mass.: The Riverside Press, 1962, p. 199.

²² Reid, *op. cit.*, p. 154 ff.

emerging out of the current managerial and merger literature.

If those firms that tend to grow via internal growth are more successful in maximising the interests of the stockholders, profits, and market price of the stock, then the merger route to expansion can be criticised as being economically wasteful. The stockholders of the acquiring corporation are more or less at the mercy of the corporate managers to determine how their capital contributions and profits are to be invested. Expansion via the merger route is not subject to the market test of stockholders and investors to direct the flow of capital. This becomes clearer as conglomerate financial reporting practices are examined.

Permissible accounting techniques

Reference is frequently made to Reid's first stockholder variable, the idea that stockholder's goals revolve around an increase in market value of a share of stock, with an adjustment for dividends. The usual conclusion is that the higher the price per share, the more satisfied is the stockholder. While there are many factors affecting the price per share of stock, the concept of future earnings and dividends flows generally are considered the most important. Although most investment analysts caution against the use of a current price to earnings ratio as an appropriate device for capitalising earnings, '... nevertheless, despite the fact that ratios of stock prices to current earnings are, by their nature, quite unsuitable for such a role, in practice they are often treated as capitalisers. This attitude has developed out of their ready handiness as financial yardsticks, even though these yardsticks are vacillating and uncertain. . .'.²³

It is difficult to measure independently why or how the price to earnings ratio changes. A first approximation suggests that an increase in earnings per share is desirable for the stockholder.²⁴ However, with regard to business combinations that cause a change in the survivor's earnings per share due to the terms of the combination without substantial economies of scale, the surviving price to earnings ratio should be merely the sum of the components in the combination.

The American Institute of Certified Public Accountants issued Accounting Research Bulletin No 40 in September 1950, amended it slightly and included it in ARB No 43 in June 1953, and subsequently superseded that pronouncement with ARB No 48 in January 1957. The 1957 pronouncement

²³ Nicholas Molodovsky, 'Recent Studies of P/E Ratios', *Financial Analysts Journal*, Vol. 23, No. 3, May-June 1967, p. 106.

²⁴ *Ibid.*, p. 139.

was amended slightly in 1966 and is largely still in effect. It suggests that a business combination can be treated either as a purchase or a pooling of interests. A purchase presumably would require the valuation of the acquired firm as its cost to the survivor, the cash surrendered, or the best measure of the cash equivalent of what was given in exchange. A pooling of interests suggests that ownership and voting rights of the predecessor company's stockholders would be approximately proportional in the surviving company. Other conditions necessary for the pooling technique to be used include a continuity of management, a continuity of all of the predecessor company's lines of endeavour, and the lack of dominance in the combination by one of the predecessors. These conditions that are indicated as necessary are softened considerably by the following:

No one of the factors . . . would necessarily be determinative and any one factor might have varying degrees of significance in different cases. However, their presence or absence would be cumulative in effect. Since the conclusions to be drawn from consideration of these different relevant circumstances may be in conflict or partially so, determination as to whether a particular combination is a purchase or a pooling of interest should be made in the light of all such attendant circumstances.²⁵

As is frequently the case, the AICPA has hedged its position considerably. The use of the pooling technique means that the books of account for the survivor are generally the sum of the books for the constituents. (The composition of the stockholders' equity may change in composition but is the same in total.)

The differences that may occur on the subsequent reports of the survivor between a purchase and a pooling are significant. By treating an exchange of stock combination as a purchase, the acquired assets are valued at the market value of the stock exchanged. This market value usually is far in excess of the accounting book value of the acquired company. Thus, in subsequent years, the earnings of the survivor will have charges against its earnings as the market valued assets are written off or consumed. The earnings of a company purchased for more than book value, *ceteris paribus*, will be less than if the company were not purchased. Hence, a pooling technique will result in higher earnings as the increased value of the acquired company is not formally recognised in the accounts. An analogy may

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be drawn at the level of a private investor. A buys one share of stock for \$10. The stock rises in price to \$50 and A has a tax-free exchange of the stock for another stock with a \$50 price and a \$2 annual dividend. Is he getting a 20 per cent return or a 4 per cent return? The pooling concept would suggest a 20 per cent return, the purchase concept a 4 per cent return.

A simple example is presented to show how earnings per share can be increased. This effect is present whether or not the pooling or purchase concept is used. However, it is more pronounced under the pooling arrangement.

Assumed data:

	Co.A	Co.B
Market Price	\$100/share	\$50/share
Price/Earnings Ratio	40	20
Earnings per Share	\$2.50/share	\$2.50/share

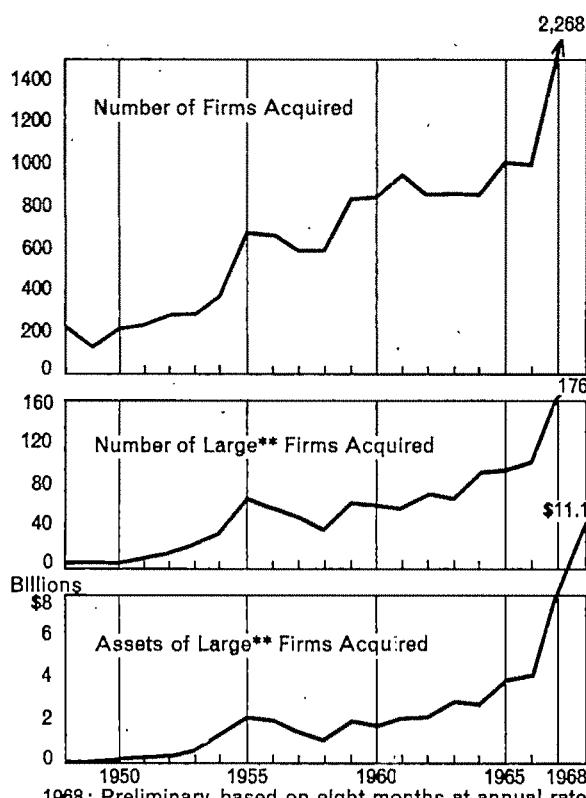
It appears from the given data that Co.A has brighter future prospects warranting its higher price/earnings ratio. If we merge (pool) the two companies exchanging one share of A for each two shares of B, we acquire \$5 of earnings for each new share of A exchanged. Thus, the average earnings per share will increase. Assuming B has twice as many shares outstanding as A, the combined survivor will have earnings per share of \$3.75. In fact, if the exchange is anything less than one A for one B (a 100 per cent premium favouring B), earnings per share will increase for the survivor. Thus a significant premium can be offered to the B stockholders and earnings per share will still rise.

Now assume that the exchange package is altered so that instead of one A for two B, A gives one share of a convertible preferred stock, say convertible into one A. With a preferred dividend less than the earnings generated by two B but greater than the dividends paid by one A, a more dramatic increase in earnings per share may result. Assuming a \$2 preferred dividend, the two shares of B exchanged add a net of \$3 ($2 \times \$2.50/\text{share} - \2) to A's earnings per share. Thus earnings per share of common stock outstanding could rise to \$5.50/share. A similar result is achieved when convertible debentures or warrants are issued in the combination.

It is clear that Co. B must be at least of some significant size in order to make a worthwhile contribution to the improvement of Co. A's earnings per share. As Co. A gets bigger, it must acquire more and/or larger Co. B's to increase earnings per share and to utilise the leveraging effect of a high price/earnings ratio to increase the market price of the common stock. Figures 3 and 4 support this conclusion

²⁵ Committee on Accounting Procedure, *Accounting Research Bulletin No. 48: Business Combinations*, American Institute of Certified Public Accountants, New York, 1957.

Figure 3
Manufacturing and Mining Firms
acquired 1948-1968



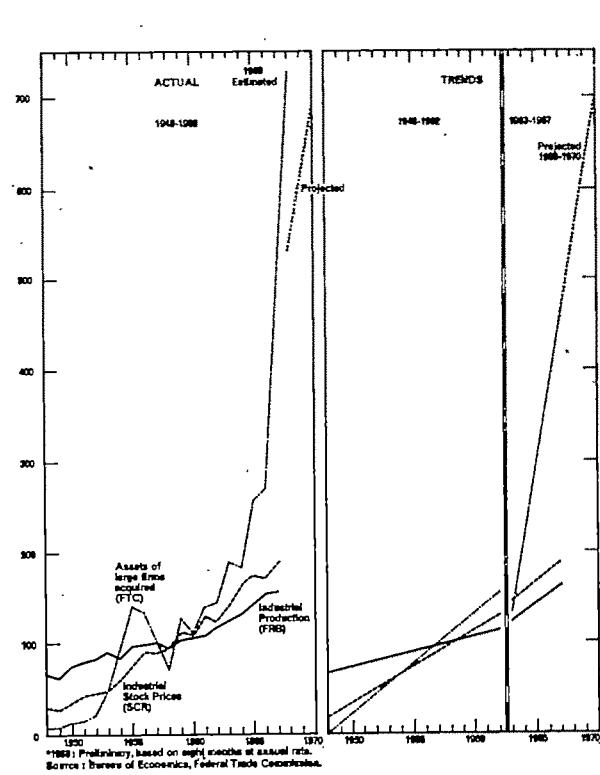
1968: Preliminary, based on eight months at annual rate
**Firms with assets of \$10 million or more
Source: Bureau of Economics Federal Trade Commission

and indicate that the magnitude of assets and number of firms acquired by large firms had increased dramatically over the last ten years and has increased phenomenally in the years 1964-68 under the impetus of the conglomerate merger movement.

From a review of the difference between a pooling and a purchase treatment and from an examination of the financing and exchange techniques it is possible that the combination of firms can result in earnings per share figures that may be suspect.

Increasing awareness of the limitations of earnings per share has caused much interest in the area of public reporting by conglomerates. At Tulane University in November 1967 a symposium of academic, government, industrial, finance, and public accounting representatives discussed segmented reporting for conglomerates. While it is too soon to state that the Federal Government will require product line reporting along that currently mandated in the United Kingdom, it is apparent that many analysts are re-evaluating conglomerate mergers with some question as to whether they benefit the common stockholders and/or the public interest.

Figure 4
Trends in large* mergers, Industrial Production
and Industrial stock prices 1948-1968
Indices 1957-59=100



Observations of conglomerate growth

The foregoing analysis highlighted some of the current conglomerate theory and reviewed the environment favouring conglomerate mergers. The economic and managerial reasons for diversification via the merger route were discussed. The importance of the P/E ratio and the techniques of consolidation also were analysed.

Now the analysis becomes more micro and focuses on the patterns of growth of the conglomerate corporation. Five conglomerates of varying size and in differing stages of development were selected. Ogden Corporation is a reasonably small corporation which before beginning its current acquisition programme, divested a number of unprofitable divisions, from 1960 to 1963. Automatic Sprinkler is one of the newest of the conglomerate group, being incorporated only in 1965. Gulf and Western a small corporation of scarcely \$10 million assets in 1960 has matured through acquisition to \$749 million assets in 1967. Litton Industries, although somewhat larger, parallels Gulf and Western in its growth patterns. ITT represents the old, well-developed conglomerate.

Table 3 contains the assets and growth rates of these five conglomerates.

TABLE 3
Assets and Growth Patterns of Five Conglomerates

Company	Year	Assets ($t - \frac{1}{2}$)	Change in Assets	$\frac{A(t) - A(t - \frac{1}{2})}{A(t - \frac{1}{2})}$
Ogden Corp.	1960	\$ 162,640,000		0%
	1961	162,410,000		-5%
	1962	151,800,000		-13%
	1963	133,850,000		+20%
	1964	160,180,000		+4%
	1965	166,300,000		+40%
	1966	232,870,000		+64%
	1967	381,680,000		
Automatic Sprinkler	1965	23,180,000		156%
	1966	59,700,000		166%
	1967	158,130,000		
Gulf and Western	1960	10,180,000		120%
	1961	22,570,000		68%
	1962	37,610,000		30%
	1963	48,112,000		42%
	1964	68,364,000		53%
	1965	104,096,000		183%
	1966	294,239,000		155%
	1967	749,439,000		
ITT	1960	923,744,000		18%
	1961	1,088,310,000		14%
	1962	1,235,781,000		19%
	1963	1,469,168,000		13%
	1964	1,668,863,000		21%
	1965	2,021,795,000		17%
	1966	2,360,435,000		25%
	1967	2,961,172,000		
Litton Industries	1960	119,004,000		44%
	1961	172,771,000		56%
	1962	269,491,000		31%
	1963	354,945,000		19%
	1964	423,697,000		49%
	1965	630,023,000		17%
	1966	742,535,000		27%
	1967	945,024,472		

Source: Moody's Industrials 1960-1968

As Table 3 indicates the analysis relates per cent change in assets from period t to period $t - 1$ with the assets of period $t - 1$. We are hypothesizing that the rate of growth in assets from one year to the next is contingent on the starting base of assets. This hypothesis contributes to our knowledge of how conglomerates grow. Graph 1 indicates the relationship. By inspection, it is obvious that the larger the absolute size of the corporation, the smaller its percentage growth from year to year. Our sample shows that within the range of total assets from 0 to \$300 million, growth rates are likely to be erratic. Beyond \$300 million, however, this rate settles down to a range of 5 to 30 per cent per year.

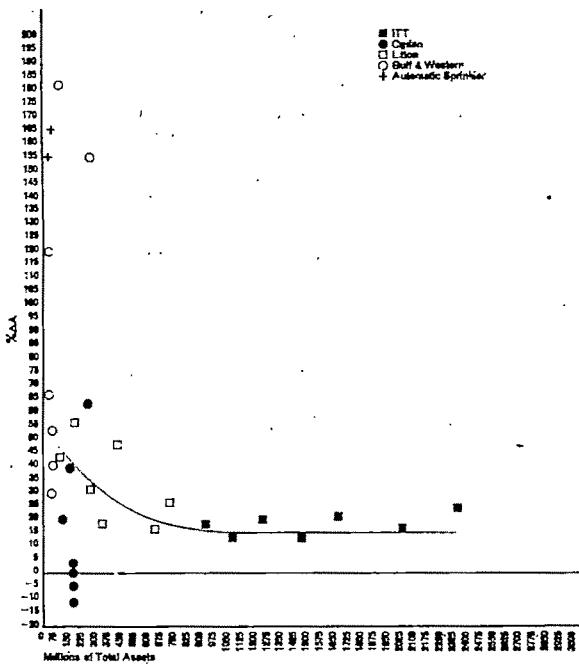
Mathematically we would expect that the larger the base of comparison, $A(t - 1)$, the smaller the growth rate. However, there are large companies available for acquisition which would enable the conglomerate to duplicate its earlier growth. Evidently there are some underlying limiting factors. The top-heavy capital structure of the large conglomerate may be one such limitation. More importantly, however, the limits of the span of managerial control, may restrict the

growth rate by the large firm. It is one thing to expand from \$20 million in one year, and quite another thing to expand from \$2 billion to \$4 billion without drastic organisational effects.

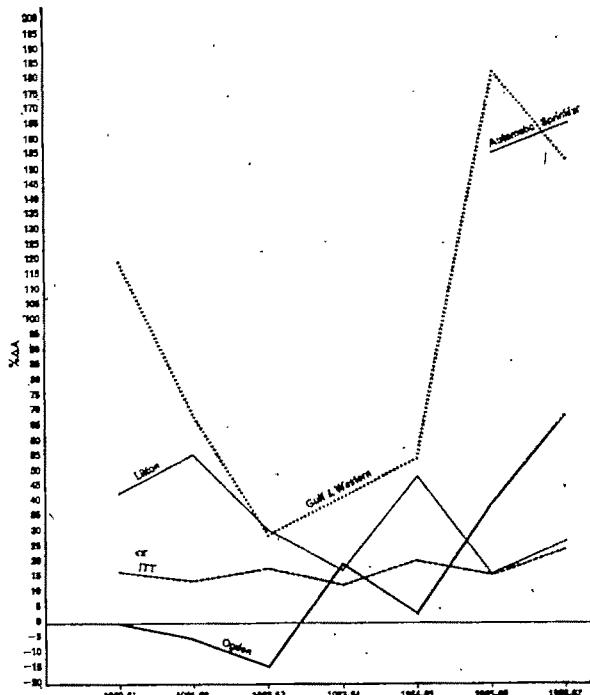
Graph 2 shows the per cent Δ assets plotted over time. A decided fluctuating pattern was noted. Of 20 possible changes of direction of the per cent change in assets, 15 were observed. Since our samples involve only seven years' data, six observations and five possible changes for each firm, excluding Automatic Sprinkler, a statistical test of runs was not thought to be an adequate test of the limited data. If we assume, however, that the probability of the rate of growth either continuing in the same direction or reversing direction is 0.5 for each occurrence, the data may be analysed as a binomial distribution. The probability of 15 or more changes of direction in the growth rate out of a sample of 20 is 0.0207. Hence the data reject the hypothesis that this variation is random, and support the hypothesis that there is some accountable cause for the changes in direction and magnitude of growth.

It is possible that after a year of rapid growth,

Graph 1
Change in Assets vs Asset size



Graph 2
Change in Assets over Time



which must cause a good deal of organisational change and necessity for adaptation, a period of consolidation is undertaken to integrate the new acquisitions into the organisation. Our data indicate that most frequently this period of consolidation evidenced by declining growth lasts about one year, but occasionally it stretches over two years – as in the case of Gulf and Western from 1960 to 1963 and Litton from 1961 to 1964. Both of these two-year consolidation periods follow years in which the growth rate had been extremely high, and likely caused more organisational adaption.

Combining the results of the two foregoing analyses, we can draw some preliminary conclusions about the nature of conglomerate growth to date, and perhaps the pattern of future growth. Once a firm has grown above \$300 million in assets, we would expect the growth rate to slacken considerably to somewhere in the range of 5 to 30 per cent annually. Furthermore, a firm which has had a large growth rate in one year would be expected to have a smaller rate in the following year.

Limitations and suggestions for additional study

The empirical investigation in this paper has been hampered by difficulties in data collection. Data have been limited to public information that is available in annual reports and the various financial services, e.g. Moodys, Value Line, etc. Thus, the corporate infor-

mation is subject to the variety of accounting techniques that have been questioned earlier.

With regard to asset measurement, it was impossible to isolate the effects of the pooling practice in combinations although each company indicated the treatment of several acquisitions each year in this manner. Ogdan Corporation, in 1961-3, had significant spin-offs of parts of the company. In fact, negative growth occurred for those three years.

No data on earnings were used. Inability to identify changes in capitalisation due to acquisitions precluded the use of such data in any meaningful way. In some cases the terms of offers were available but in others they were not. Not being able to identify relevant changes in earnings and in common (or potential common) shares meant that any measurement would be in terms likely to be most favourable to the company.

In order to obtain adequate data about a conglomerate over an extended period of time personal contact with the firm is highly desirable. Such contact should provide detailed information about all acquisitions such as is provided in SEC registration statements. Of possibly greater significance would be the access to knowledge of changes in organisational structure and the effect on the span of control of management members.

Another area for further investigation is that of capital structure. Conglomerates traditionally have had a somewhat heavy debt structure. It would be

interesting to compare the growth of conglomerates with their best structures to see if there is a practical limitation on the amount that a rapidly growing firm may sustain.

Conclusions

Though the recent merger movement is the product of many factors, there are evident economies in corporate size despite what Reid suggests. By discouraging horizontal and vertical mergers, the enforcement of the anti-trust legislation has encouraged conglomerate mergers. Further laxity of financial reporting standards has, until very recently at least, allowed conglomerates a widespread latitude which has permitted a financial story to be presented to investors in a light most favourable to management. Had this permissive environment and the general deterioration of property rights (for example, the separation of control from ownership of the stockholder) continued unchecked, the authors would have predicted that the merger movement, in general, and that towards more conglomerates, in particular, would have continued to expand. Although there is, of course, a practical limit on conglomerate expansion by any one firm, which is imposed by the relationships of corporate size, P/E ratios, and earnings growth, a

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growing number of new conglomerates approaching the size of giants such as Litton and LTV could have been expected. Even so, it is reasonable to have expected that the giants would have become increasingly constrained by their size, and therefore would have experienced a much slower growth rate. This would result in a decline in P/E ratios, a decline which is already detectable among the larger, more mature, conglomerates.

But there are other factors at work. The development of tight money markets and the decline in securities prices during the last 12 to 18 months has already reduced the pressure to form conglomerates. For several years the Accounting Principles Board has been under pressure to tighten up the accounting standards as regards conglomerates. At one time it was believed that the APB would do away with pooling of interests accounting altogether, and hence remove overnight a financial reporting device which had placed conglomerates in a favoured position as regards income reporting. But that has not happened. APB Opinion No 16 does tighten up the rules on poolings of interests somewhat, but it remains to be seen what effect it will have upon the conglomerate merger scene. It may well be less than some people expect - and far less than many professional accountants may have hoped.

This paper has been produced as part of a larger study financed by the Social Science Research Council on the nature and significance of professional links in the Commonwealth.

The Development of Accountancy Links in the Commonwealth

T. J. Johnson and Marjorie Caygill

Among the professions which emerged in their modern form in nineteenth-century Britain, accountancy has been peculiarly characterised by heterogeneity and organisational fission. While engineering, for example, has been characterised by organisational diversity based largely upon the emergence of specialist techniques, accountancy has given birth to a succession of associations which were, and still are in many respects, competitive in character; differentiated in terms of status rather than the services which they offer.¹ Although accountants have experienced difficulty in creating viable 'representative' bodies in many industrialised societies, Britain has been a particularly prolific breeding ground for new accountancy bodies. Chart I gives some indication of the cycle of foundations and amalgamations which have characterised the profession. Amalgamations and takeovers have, to some extent, balanced new foundations, but there still remain today at least ten accountancy bodies in England alone.

Histories of the British profession have attributed this cycle of fission and amalgamation to the internal dynamics of the situation² derived from arguments such as that put forward in *The Accountant* more than sixty years ago:

'In the case of each of these numerous new Societies, the actual reason for their origin has been identical.

The Incorporated Society was formed in the first

instance to enhance the position of those who were unable to secure admission to the Institute under (the terms of) its Charter. So long as the Society was prepared to admit practically everyone who paid its fees it had the field of nonconformity to itself; but as soon as it began to impose conditions with a view to improving its membership, it left uncatered for a dissatisfied residuum who straightway founded another rival institution.'³

We will attempt to show that this process has been significantly reinforced by the activities of British accountants overseas, particularly in the Empire and Commonwealth. The discussion will deal with the following problems:

- (1) What has been the extent of British influence in the development of accountancy in the Empire and Commonwealth?
- (2) Have there been significant variations in the relationships between the various professional bodies in Britain and those overseas?
- (3) To what extent have these relationships affected the development of the profession in the metropolitan country?

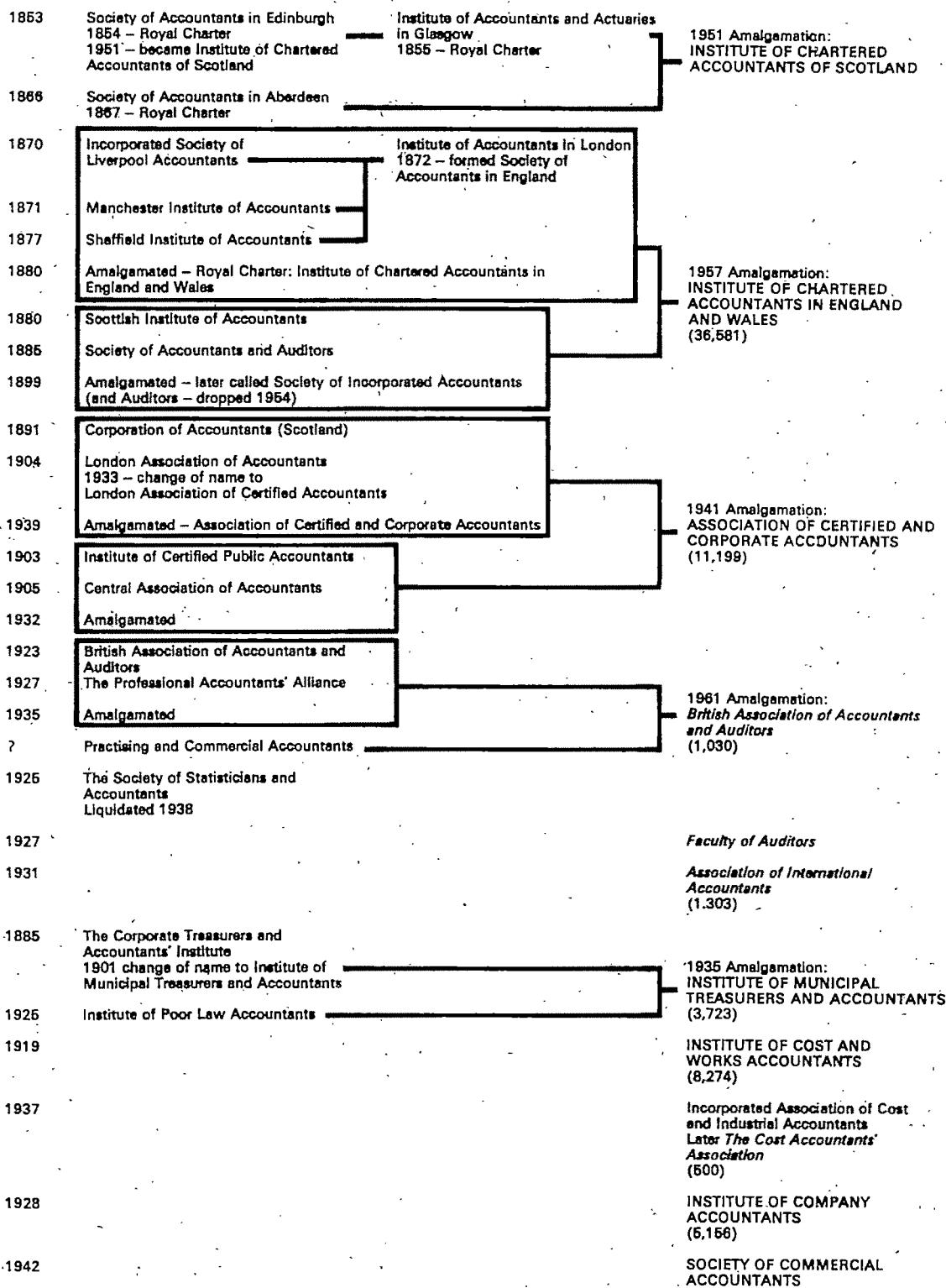
In answer to the first and second questions above, it will become clear that not only have the various British associations exerted a continuous influence on accountancy in the Commonwealth, but that individual institutions have exhibited a unique pattern of influence. That is to say, the content and timing of these links have varied and have had varying consequences for the development of accountancy in Commonwealth countries. We will attempt to document variations in these patterns of influence by looking at such indicators as Commonwealth membership of British accountancy bodies; the spread of overseas branches; the export of qualifications (that is, the number of students taking British qualifications both overseas and in the UK, and the spread of overseas examination centres) and finally, an area

* As this paper traces the historical development of the profession, South Africa and Rhodesia have been included as 'Commonwealth' throughout. The Republic of Ireland has, however, been excluded.

¹ There are exceptions to this general statement. The Institute of Municipal Treasurers and Accountants is a specialist body whose members qualify as local authority officers; The Institute of Cost and Works Accountants, although specialising in industrial and commercial costing, still remains a significant competitor to general accounting bodies who are making efforts to exploit the increasingly significant field of management accounting.

² See, for example, Nicholas A. H. Stacey, *English Accountancy: A study in Social and Economic History 1800-1954*, Gee, 1954.

³ *The Accountant* Vol. XXI, 1904, p. 299.

Chart I**Foundations and amalgamations of accountancy organisations in Britain****Foundation date****Notes:**

This table is based in part on data contained in Geoffrey L. Millerson, *The Qualifying Associations – A Study in Professionalisation*, London 1964, Routledge & Kegan Paul.
() Membership figures for 1963.

which is related very much to our third question, the struggle for registration and recognition which was an important element in the relations between accountancy bodies both in Britain and throughout the Commonwealth.

The Institute of Chartered Accountants in England and Wales,* founded in 1880 as a result of the amalgamation of the existing London and provincial bodies, was, like the Scottish chartered associations, explicitly an association of public accountants. The cost and length of obligatory articles in the offices of its Fellows and the severity of its examinations soon became high barriers to entrance. This relative closure of the established profession created conditions for the emergence of new and competing associations catering for those who worked as accountants but were unable to gain admittance to the Institute. To some extent also new associations have been a response to new sources of demand from clientele who, in seeking accountancy services, also sought to avoid the fees of 'qualified' accountants.

The first of these new associations was the Society of Accountants and Auditors, founded in 1885. As the Society in its turn moved from an open door policy to one of limited entrance, it was followed in 1904 by the London Association of Accountants (later the Association of Certified and Corporate Accountants) and in time by others. However, the consequences of the Institute's policy and that of the Scottish chartered bodies for practice in the UK is only part of the picture. While the Institute effectively blocked from entry many who held responsible positions in industry and public practice, the accountancy student and practitioner in the Empire was even more disadvantaged by the Institute's Charter as articles could only be served with Chartered Accountants in England and only British residents could become Fellows.

These constraints upon the Institute's overseas activities were to be a continuing factor in the development of accountancy in the Commonwealth. The Society, on the other hand, was created not only with the explicit intention of providing an association for those in the UK who were excluded from membership of the Chartered bodies, but also with a

vigorous overseas policy, oriented to increasing its membership and expanding its organisation in such a way as to create a widely-based Empire power in professional life. From the Society's foundation onwards, the accountancy profession in Britain fought its battles not only in the metropolitan country, but throughout the Empire, and the Society was the spearhead of this development. A major difference between the Society and the Institute was between a body catering solely for public accountants, and one viewing industrial and commercial accountants as a potential source of recruits – an important factor, considering the frequent impossibility in pioneer communities for more than a minority of accountants to make a living purely from public practice. This bias in recruitment was further developed by the Association and the Institute of Cost and Works Accountants which was founded in 1919.

Table I is an attempt to measure the influence of British accountancy bodies throughout the Commonwealth by presenting membership figures for the period 1900–69. Generally speaking, local associations were originally established by migrants from Britain, many of them members of the British accountancy bodies. In the early period the migrants were mainly concentrated in South Africa and Australia, attracted by the booming economies of these countries following the gold and diamond strikes. Increasingly they followed in the wake of British capital and commerce; providing professional services and staffing the commercial entrepôts of the Empire. Of India, for example, it was claimed that accountancy was 'Introduced by early British merchants with whom the firms of Chartered Accountants were in absolute ancillary'.⁴

The Table indicates that in the first decade of the twentieth century the total number of British 'qualified' accountants practising in the Commonwealth was relatively small. No more than 400 are listed, with probably a few more who did not retain membership of their association. As a percentage of the total membership of all the British associations shown, those practising in the Empire accounted for 6 per cent in the 1900s, rising to 7 per cent in the 1920s, stabilising at 7 per cent during the war years of the 1940s and again increasing to 9 per cent in the late 1960s.⁵ This increase in British qualified accountants

* In the following discussion the Institute of Chartered Accountants in England and Wales will be referred to as the 'Institute'; The Society of Incorporated Accountants and Auditors (incorporated in 1885) as the 'Society'; and the London Association of Accountants (which amalgamated with other bodies to become the Association of Certified and Corporate Accountants in 1939) as the 'Association'. Members of these bodies will be referred to as 'Chartered', 'Incorporated' and 'Certified' accountants respectively. The three Scottish chartered bodies which amalgamated in 1951 as the Institute of Chartered Accountants of Scotland will be referred to as the 'Scottish chartered bodies'.

⁴ P. S. Sodhbans, Paper read at the 5th International Congress of Accountants in Berlin, September 1938, and reprinted in Kongress-Archiv 1938 V. Internationaler Prüfungs- und Treuhand-Kongress – Gesamtwerk – Band B.

⁵ A cautionary note must be struck in that these figures may be inflated by dual membership; individuals may be members of more than one body, particularly combinations of the specialist Institute of Cost and Works qualifications and others.

TABLE I

Empire, Commonwealth and total membership of British professional accountancy bodies – by decade

		Regional distribution						Membership	
		Africa	Asia	Austral- asia		Europe & W. Nr. East Hemis- phere		Empire & Common- wealth*	Total
				Asia	Austral- asia	Nr. East	Hemis- phere		
<i>1900s</i>									
ICA Scot	(1900)	11	6	5	—	3	25	710	4
ICA E&W	(1902)	19	25	14	1	4	63	2,813	2
SIAA (iii)	(1904/5)	176	21	85	—	5	287	2,047	14
IMTA	(1905/6)	2	—	1	—	—	3	328	1
LAA (ACCA)	(1910)	—	17	—	—	4	21	1,110	2
		208	69	105	1	16	399	7,008	6
<i>1920s</i>									
ICA Scot	(1920)	23	65	11	—	76	175	1,580	11
ICA E&W	(1921)	46	134	25	2	52	259	5,343	5
SIAA (iv)	(1927)	162	97	93	2	28	382	4,629	8
IMTA	(1920)	6	5	—	1	9	21	458	5
LAA (ACCA)	(1929)	83	41	27	1	33	185	2,875	6
ICWA (v)	(1922)	—	—	—	—	—	(est.) 16	422	4
		320	342	156	6	198	1,038	15,307	7
<i>1940s</i>									
ICA Scot	(1940)	126	215	27	1	124	493	4,435	11
ICA E&W	(1939)	193	323	31	4	90	641	13,068	5
SIAA (iv)	(1939)	453	229	39	2	35	758	7,509	10
IMTA	(1938)	2	9	—	1	—	12	1,466	1
ACCA	(1939)	144	139	23	6	63	375	6,075	6
ICWA	(1938)	13	22	7	3	5	50	1,223	4
AIA	(1937)	163	68	3	1	16	251	1,301	21
		1,094	1,005	130	18	333	2,580	35,077	7
<i>1960s</i>									
ICA Scot	(1968)	266	140	86	9	369	870	8,006	11
ICA E&W (+SIAA)	(1969)	1,438	617	170	55	613	2,893	45,500	6
IMTA	(1969)	133	5	8	9	21	176	5,024	3
ACCA	(1969)	698	199	113	43	323	1,376	12,140	11
ICWA	(1969)	622	505	106	6	198	1,437	10,841	13
AIA	(1969)	130	288	10	27	79	534	1,564	34
SCA	(1967)	296	157	172	5	47	677	3,500	19
		3,583	1,911	665	154	1,650	7,963	86,575	9

Notes:

- * See note on p. 155; we have also excluded Palestine.
- (i) The above figures are taken from the membership lists of the following accountancy bodies: Institute of Chartered Accountants of Scotland (ICA Scot); Institute of Chartered Accountants in England and Wales (ICA E&W); Society of Incorporated Accountants and Auditors (SIAA); Institute of Municipal Treasurers and Accountants (IMTA); London Association of Accountants (LAA) later Association of Certified and Corporate Accountants (ACCA); Institute of Cost and Works Accountants (ICWA); Association of International Accountants (AIA); Society of Commercial Accountants (SCA). These are the British accountancy bodies with a membership of 3,000+ in 1963 (see Chart I) plus the AIA. The Institute of Company Accountants is not included since the Institute . . . exists to further the profession of Company Accountant in the UK. We have no facilities overseas and do not recruit students from outside the UK. . . . (Letter from Executive Officer 23.2.70.)
- (ii) The figures, of course, do not show all those who have obtained the qualifications of an accountancy body since not all will take up, or continue to maintain, membership.
- (iii) Figure for South Africa based on estimate in *Incorporated Accountants Journal*, Vol. XVI, 1904–5.
- (iv) Figures adjusted as far as possible to give number of individual members; published list includes members under each city in which the firm of which they are principals has offices.
- (v) Total membership figure taken from *Management Accounting*, Vol. 47, 1969. Figure for Empire and Commonwealth is an estimate based on the 1938 percentage.

working throughout the Commonwealth represents a continuing commitment of the metropolitan profession to an overseas policy. However, these overall percentages conceal significant variations in the overseas involvement of the associations and regional variations in the location of members as well as their country of origin.

In the early years migrant accountants from Britain comprised a considerable percentage of professional accountants in the local areas. In the first decade of this century 12 per cent (94) of the members of Australian accountancy bodies were British qualified. This was by no means unusual; a contemporary estimated that in 1916, 16 per cent of the membership of Canadian associations had qualified in Britain.⁶ When it is recognised that in the early years of the century the majority of accountants belonging to the newly founded local associations had been admitted on the basis of experience and 'good character', then it is likely that the metropolitan accountants comprised a majority of those holding some kind of examined qualification.

Gradually throughout the period under review, and with increasing momentum since the Second World War, the pattern has changed. Britain exported fewer accountants and became, on balance, an exporter of qualifications; examining Commonwealth students in Britain or in their own countries. The policy of exporting qualifications rather than personnel partly explains variations in the Commonwealth membership of the British associations throughout the period. For example, no less than 14 per cent of the Society's membership was to be found in the Empire in the 1900s as against 2 per cent of those qualified by the English Institute. This pattern had evened out somewhat by the 1920s, partly as a result of the Society's loss of enthusiasm for Empire glory once it had fully established its position at home. Even so, the Society's Commonwealth membership remained high until its merger with the Institute in 1957. In the 1900s the Association was still a newcomer, and only 2 per cent of its members were in the Empire. However, like the Society before it, an 'Imperial' policy was adopted in an effort to attract members, money and influence. As a result, the pattern of increasing Commonwealth members is exhibited: 6 per cent in the 1920s, rising to 11 per cent in the 1960s. The latter figure reflects an increase in the number of overseas examination candidates since the Second World War. As the policies of the established bodies in Britain created the conditions for the emergence of new associations, so the pattern was repeated of the new

foundations rapidly increasing their Commonwealth membership. The Institute of Cost and Works Accountants, founded in 1919, had 4 per cent of its membership in the Commonwealth by the 1940s, increasing to 13 per cent in the late 1960s. Similarly, one of the newest arrivals on the scene, the Society of Commercial Accountants, founded in 1942, followed the pattern established at the turn of the century. Ignored or castigated by the established bodies at home, it quickly set up an extensive Commonwealth operation. In the 1960s 19 per cent of its membership was in the Commonwealth. A body which aims specifically at overseas links is the Association of International Accountants. Originally a branch of the International Accountants' Corporation of Australia, it was incorporated as a separate body in England in 1932. As yet unrecognised by the Board of Trade under the 1948 Companies Act, which is a major barrier to its expansion when membership of other recognised accountancy bodies can be obtained overseas, it had 34 per cent of its members in the Commonwealth in 1969.

An exception to the pattern is the high rate of Commonwealth membership of the Scottish chartered bodies. An established association, limiting entry by means of home-based articles, its Empire and Commonwealth membership has not fallen below 11 per cent since 1920. Although the numbers involved remain relatively small, it would seem that, compared with members of the English Institute, Scottish accountants were more likely to emigrate,⁷ particularly to countries of the 'old' Commonwealth. For example, in 1968 the greatest concentrations of Scottish Chartered Accountants were located as follows: Canada 289, (USA 99), South Africa 123, Australia 66, Hong Kong 51, Rhodesia 32, India 31. This contrasts markedly with the overseas location of Association membership in the following year: Nigeria 264, Jamaica 104, Canada 98, Zambia 90, South Africa 90, Australia 89. These figures indicate a much greater concentration of membership in the 'new' Commonwealth.

Of the Commonwealth countries in Africa, South Africa has always had a large number of British qualified accountants. However, the overall regional figure for Africa conceals a recent upward trend in those working in the 'new' Commonwealth countries of tropical Africa. In the 1900s 203 of the 208 accountants listed as resident in Africa were working in South Africa. In the 1920s the figure was still high – approximately 212 out of 320, and only one-quarter of the total worked outside South Africa in 1940. However, in the 1960s the number of British

⁶ Richard Brown, *History of Accounting and Accountants*, Edinburgh, 1905.

⁷ See, for example, *The Accountant*, Vol. XLIX, 1913.

qualified accountants working outside South Africa were in a majority - 58 per cent in 1969.

The increase in the number of British qualified accountants in Asia between 1900 and 1920 was largely the result of an expansion of accountancy in India. While India has since Independence developed her own accountancy institutes and qualifications, a high proportion of the Asian membership of British bodies is still located there.

The number of British qualified accountants in Australasia has declined relative to other regions over the period, reflecting a general trend of decline in the 'old' Commonwealth.

The figures for the Western Hemisphere conceal a similar shift of membership from Canada in the early years to the West Indies. It was not until after the Second World War that, in line with its general spread to the developing areas, the influence of British accountancy bodies was fully experienced in the West Indies, channelled in large part through membership of the Association.

In general terms the membership figures indicate that the influence of the metropolitan accountancy bodies has been maintained. Today the percentage of Commonwealth members is greater than it has ever been and, while the British qualified may be a declining percentage of the total number of Commonwealth accountants, their influence in the newly independent Commonwealth countries is still very great. The figures also indicate that, at least as regards membership, the English Institute has played a less significant role in the Commonwealth than it has in Britain. Relatively more influential have been those associations which were set up in competition with the established body and have been more oriented to the needs of employed accountants in industry, commerce and government. The reasons for this reversal in the development of accountancy in the Commonwealth will be dealt with more fully below, but the general tendency of the unestablished bodies to look overseas for new lines of expansion was always a factor in the development of the profession in Britain. The pattern of overseas involvement was such that there has been a continuous feedback, providing conditions in which new accountancy bodies could gain a foothold in the metropolitan country as a result of expanding their overseas activity and influence.

Organisational influences

In 1956 the President of the Institute, in commenting on the 7th International Congress of Accounting, claimed:

'Anyone who examined the history of the profession in almost any country in the world cannot fail to be impressed by the major part played by Chartered

Accountants from the United Kingdom in the world development of the profession.'⁸

This claim suggests that, although membership figures are a useful point at which to begin to assess the influence of metropolitan bodies on Commonwealth associations, they can and do give an unrealistic picture. For example, the English Institute and Scottish chartered bodies would appear to have had from the beginning a lesser influence than the Society and subsequently the Association and the Institute of Cost and Works Accountants. In 1900 while Chartered Accountants made up 51 per cent of the total membership shown in Table I, they were only 22 per cent of Commonwealth membership; that is, of approximately 3,600 Chartered Accountants, less than one hundred were practising in the Commonwealth. In fact, the largest outflow of Chartered Accountants had, until the turn of the century, been to the United States. In 1907, of the 219 Chartered Accountants overseas, 113 were in the Empire and 59 in the United States. The British Chartered bodies claim that the Certified Public Accountants of America were very much the creation of these early migrants, many of whom had opened offices in New York.

The real and abiding influence of the English Institute, however, derives from two sources. First, from its symbolic influence as the 'great parent body' holding a Royal Charter. There has been much imitation of its titles, styles and rules by overseas bodies. In 1902 the Institute expressed the greatest alarm and bitterness at the 'piracy' of its title by a new Dominion Association of Chartered Accountants in Canada. As the title was later adopted in Australia (1928), Rhodesia (1928), South Africa (1946), India (1949), Ceylon (1959), Pakistan (1961), Ghana (1963), Jamaica (1965) and Nigeria (1965), the Institute became more inclined to accept this as a compliment, although it has been quick to point out that, apart from the Australian Institute, none of the other bodies has actually been granted a Royal Charter. Secondly, of Chartered Accountants who were practising in the Empire, a high proportion acted as the local representatives of large and expanding international accountancy firms; firms that were successful in securing major American 'accounts' as well as those of business firms and financial houses operating in the Empire. In 1891, for example, the President of the Adelaide Society of Accountants stressed:

'... London firms of accountants are held in the highest esteem and their certificate (of audit) is a surety of correctness not only in the metropolis but all over the world wherever the English lan-

⁸ *The Accountant*, Vol. CXXXIV, 1956, p. 547.

guage is spoken.'⁹

Eight years later, the English Institute in attacking a local attempt at registration in Victoria claimed that, while the local accountants were bent upon excluding the 'more qualified' immigrant members of the Institute, they still remained 'strongly' represented in Victoria, particularly by such firms as Price, Waterhouse; Woodthorpe, Bevan; and Davey, Flack.¹⁰ The strength of the Institute in the Empire rested then in great measure upon the local influence of such firms as these, whose senior members and local partners not only dominated the major accounts in the territories, but were also highly influential in accountancy politics, particularly in the creation of the early indigenous professional bodies. To have a Chartered Accountant on the council of a new body gave it both status and a measure of influence with the colonial government. Chartered voices were heard more clearly by the colonial officers who were concerned with legislation relating to the control of public accountants. Certainly the Society, whose Empire policy was much more clear cut than that of the Institute, saw these few Chartered Accountants as a major threat to their own attempt to gain a hegemony of accountancy in various parts of the Empire. In 1905 the Society complained bitterly that the English Institute was attempting to undermine their efforts to introduce an accountancy registration in the Transvaal. The Institute was acting, they claimed, on behalf of London firms which considered '... the British Empire to be their legitimate preserve'.¹¹

The Institute has been well aware that its lack of direct influence through size of membership and as a qualifier has been a result of its own Charter and policy rather than a local predilection for its British competitors. It was not until 1954 that it appointed an Overseas Relations Committee with the functions of maintaining 'relations with accountancy bodies and associations overseas and keeping an eye on overseas legislation affecting the profession, with special reference to the protection of practice rights'.¹²

The activities of the competing bodies were on the whole more formal and deliberate. The Society's Commonwealth membership remained at a high level throughout the period under review. From its foundation the Society adopted an explicitly imperialist stance, regarding itself as an Empire-wide body, the President claiming in 1902:

⁹ *Incorporated Accountants Journal*, Vol. II, 1891, p. 179.

¹⁰ Editorial in *The Accountant*, Vol. XXV, 1899, p. 1141-3.

¹¹ *Incorporated Accountants Journal*, Vol. XVII, 1905-6, p. 37.

¹² Institute of Chartered Accountants in England and Wales, Annual Report, *The Accountant*, Vol. CXXX, 1954, p. 484.

'What Mr Chamberlain describes as a "parochial policy" is no more use in Accountancy than it is in Imperial affairs and Incorporated Accountants in Australia, South Africa and other British Dominions can have nothing whatever to do with it.'¹³

The deliberate Empire expansion of the Society is illustrated by Chart II which lists branches and affiliated societies founded by British associations in the Empire. The Society founded its first branch in Victoria just one year after its own formation in 1885, and there quickly followed new outposts in New South Wales, Cape Town, Transvaal and Montreal. In 1894 one of its most important ventures commenced when the Secretary visited South Africa seeking new membership. At the time of this visit the Society's South African membership numbered only 12, but the creation of the Cape Colony and Transvaal branches led to an expansion of membership to sixty within six years. The Society's membership in South Africa was not made up of British migrants only. In 1902 the independent Transvaal Institute of Accountants and Auditors became a branch of the Society, an event which the Society saw as an 'important step towards the ultimate consolidation of the Profession of British accountancy within the Empire'.¹⁴ In 1899 the original institute in the Transvaal, which had 65 members of whom nine were Incorporated Accountants, had approached the Boer government for a charter of incorporation, but the War intervened. Once the Transvaal had become a British possession the local institute instead entered into an agreement with the English Society as a result of which its 99 members became members of the Society. The Society in turn changed its rules to allow South Africans to become articled clerks in their own country. The second major focus of Society activity in the 1890s and 1900s was Australia and particularly Victoria and New South Wales. In 1904 the Australian membership of the Society was nearly 80, 52 of whom practised in Victoria and 15 in New South Wales. By 1940 the Society maintained branches in Australia, Canada, India, South Africa and Rhodesia, while its Commonwealth membership was well maintained at 10 per cent of the total membership, which had increased six times since the beginning of the century.

Although Chart II also indicates that six local societies of Chartered Accountants were formed between 1903 and 1941, these were by no means the formal, centrally controlled branches characteristic of the Society's Empire expansion. Rather they tended to be small groupings of expatriate members of the

¹³ *Incorporated Accountants Journal*, Vol. XIV, 1902-3, p. 112.

¹⁴ Editorial, *ibid.*, Vol. XIV, 1902-3, p. 26.

Chart II

Year of foundation of Empire and Commonwealth branches and affiliated societies of British Accountancy bodies

Year	SIAA		
1886	Victoria		
1894	S. Africa, W.		
1902	S. Africa, N.		
1903	N. South Wales	ICA	
1905	Montreal	S. Africa	
1910		Straits Settlement	
1913			ACCA
1923			Jo'burg, SA
1928	S. Africa, E.		India
1931	Bombay		
1932		India	
		Burma	
		Egypt	
1933	Bengal		
1936		Malay States	Malaya
1941		N. Borneo	
1948			Kingston, Jamaica
1950			Trinidad
1952	Central Africa, Salisbury		Hong Kong
1954			Salisbury
1955			ICWA
1956		Cyprus	S. Africa
1957		Br. Guiana	
1960			IMTA
1961		Lagos	N. Rhodesia (Zambia)
1967		Bahamas	E. Africa
		Toronto	S. Rhodesia
		Dar-es-Salaam	

Notes:

(a) The above chart shows foundation dates only. Many of the branches no longer exist or have been transformed into independent associations.

(b) The policy of the Association of International Accountants has been to establish an overseas branch whenever there was a sufficient number of members. Some branches have disappeared, but at present the following exist: Cyprus, Ghana, Hong Kong, Nigeria, Ceylon, Kenya.

English Institute and the Scottish chartered bodies who banded together for a variety of reasons, including that of protecting their interests in local practice. The Institute tended to tolerate such organisations rather than encourage them. However, despite their informal nature and small size, they were locally influential during their period of existence.

The Chart clearly indicates a chronological and regional breakpoint focusing upon the Second World War. The activities of the Society and Institute in the 'white' Dominions and India up until that date give way dramatically to the activity of the Association in Africa and the West Indies between 1948 and 1967. As previously stated, the growing influence of the Association was more as an exporter of qualifications than an exporter of accountants and the rapid expansion of branches in the post-war period reflects the numbers of Commonwealth students passing the

Association's examinations in centres overseas and in Britain. In 1923 the London Association of Accountants was already claiming to be the 'largest examining accountancy body in the world'.¹⁵

Chart II clearly illustrates the variation in historical sequence which has had consequences for the nature of the development of accountancy in the Commonwealth. One must ask, for example, whether the early influence of the Society and Institute had any variant effects in the development of accountancy in the 'white' dominions and India as against Africa (other than South Africa) where the Association has been more influential since the Second World War. One point is clear, that while in many instances the early influence of British accountancy was felt prior to the development of accountancy training in higher educa-

¹⁵ Presidential Address, *Certified Accountants Journal*, Vol. XV, 1923, p. 295.

tion, post-Second World War developments in Africa and the West Indies have been more closely associated with a parallel academic provision of accountancy education, giving academics and government a much more significant role in the early development of accountancy in these countries. The position in the more recently independent countries is also complicated by the significance for the development of accountancy of a longer period of colonial administration and the effects of such administration on the regulations of all professional bodies.

The export of qualifications

The export of accountancy qualifications from Britain was initiated by the Society which opened up examination centres in Australia and South Africa in the first decade of the century, and continued to provide these facilities up until the time of its amalgamation with the Institute. Both the Society and the Association, which followed closely in the provision of overseas examinations, saw their overseas role as part of the struggle against the established profession. Chart III shows the number of additional examining centres set up by the Society and Association during each five-yearly period from 1900 to 1935. The existence of examining centres indicates something of the spreading membership of British accountancy bodies, for a major condition for holding examinations locally was not only a demand for the qualification, but the existence of adequate administration and supervision.¹⁶

Since the Second World War various other accountancy bodies, including the Institute of Cost and Works Accountants, have also offered the possibility of taking at least part of their examinations overseas.

¹⁶ The first examination centre created by the Society in Melbourne in 1890 was supervised by two approved examiners, both of whom were lawyers.

As a result, the numbers taking examinations in the Commonwealth have increased despite the cessation of the Society's examinations. The extent of this professional traffic today is illustrated by Table II. While the Institute and, to a large extent, the Society before its disappearance, have been influential in the export of personnel, the Association and the Institute of Cost and Works Accountants have been more involved in the export of qualifications. The recent expansion of overseas activities of the two latter bodies has also involved a change in the direction of influence from a concentration upon the needs and training for public practice to a greater stress upon the accountant in industrial, commercial and government employment.

The extent of the influence of the British accountancy profession in the export of qualifications can also be gauged by the number of Empire and Commonwealth students sitting and passing their examinations. In Charts IV and V we give some indication of the numbers taking the examinations of several British associations. This is not an attempt to indicate the exact number of candidates or qualifiers, since we do not indicate which part of the examination the figures refer to or the number of passes actually obtained. The tables merely show the steady increase in numbers and the relative significance of the overseas operations of the British associations. Chart IV shows diagrammatically the expansion in the numbers of Empire and Commonwealth students taking British examinations between 1905 and 1955. The early rise and following decline after 1935 of Society students reflects both its early enthusiasm for Empire expansion and its waning as it became a fully established partner of the Institute. The Association shows a steady increase and the Institute of Cost and Works Accountants a rapid expansion after 1940. Chart V continues on an annual basis the more recent trends,

Chart III

The expansion of examination centres operated by the Society and the Association in the Empire and Commonwealth for the years 1900-35

Year	Centre	Year	Centre	Year	Centre
1900	Melbourne	1920	Accra	1930	Nairobi
1905	Johannesberg & Transvaal		Lagos		Simla
1910	Bombay		Hong Kong		Gibraltar
1915	Natal		Queensland		Nyasaland
	Bihar		Colombo		Selangor
	Calcutta		Hyderabad		Bulawayo
	Madras		Ottawa		Salisbury
	Lahore		Br. Columbia		Trinidad
	Jamaica	1925	Gwalior	1935	Singapore
	British Guiana		Gorakhpur		Kuala Lumpur
			Tanganyika		Antigua

Sources:

Society of Incorporated Accountants and Auditors—*Incorporated Accountants Journal*
Association of Certified and Corporate Accountants—*Certified Accountants Journal*

TABLE II
Commonwealth accountancy examination centres for British qualifications 1969
Number of centres

	<i>Association of Certified and Corporate Accountants</i>	<i>Association of International Accountants</i>	<i>Institute of Cost and Works Accountants</i>	<i>Institute of Municipal Treasurers and Accountants</i>	<i>Society of Commercial Accountants</i>
Africa					
S. Africa and Rhodesia	3	2	12	—	—
Other	25	19	14	4	12
Asia					
India	—	2	5	—	1
Other	19	11	11	—	7
Australasia	—	1	6	—	1
Europe and Near East	3	2	3	—	2
W. Hemisphere					
Canada	2	2	4	—	1
Other	14	6	4	—	2
Total:	80	45	59	4	26

Sources:

ACCA — ACCA Examination Regulations and Qualifications for Membership, 1969, p. 14.

AIA — Qualifications for Membership and Syllabus and Regulations for Examinations, p. 5.

ICWA — Letter from Secretary, December 1969.

IMTA — Examinations Handbook 1968, p. 12; Annual Report 1968-69, p. 39.

SCA — Letter from Director and Secretary, February 1970.

Chart IV

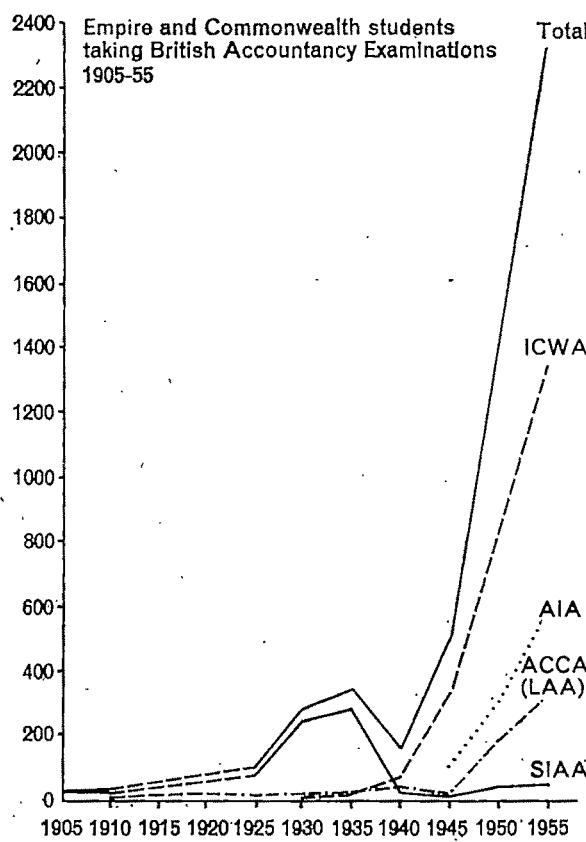
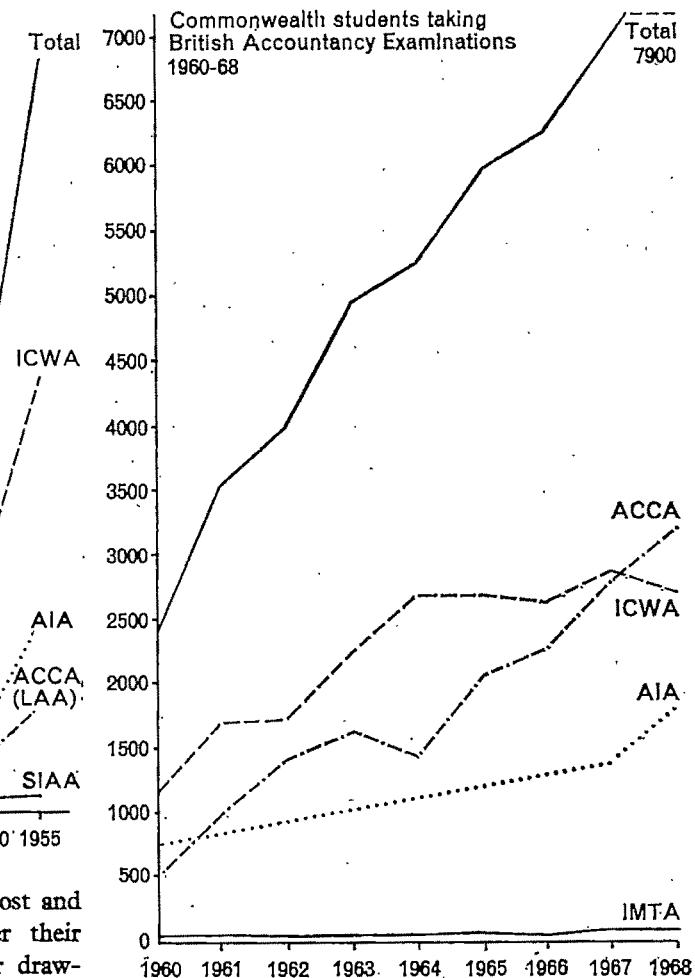


Chart V



with the Association and the Institute of Cost and Works Accountants expanding still further their overseas examination commitment. A major draw-

Chart IV and Chart V: Notes

1. The figures represent the number of 'sittings' in each year, not the number of candidates.
2. They have been obtained by extracting the number of passes by Commonwealth students in the Intermediate and Final examinations (or their equivalent) of the various accountancy bodies for the Summer and Autumn examinations. The pass rate is estimated at roughly one-third of the number of sittings. Therefore, the figures shown here are estimates, based on the actual number of passes. The exceptions are the figures for 1960-68 for the ACCA (see note below), and those for the AIA.
3. Commonwealth students sitting accountancy examinations in the UK are not included.
4. *Society of Incorporated Accountants and Auditors:*
 - (a) Source – *The Incorporated Accountants Journal* (later renamed *Accountancy*).
 - (b) Figures for 1915 (a War year) are not available.
 - (c) The major omission occurs from 1940 on as we have been unable to obtain any information on South African passes (207 out of total Empire and Commonwealth 291 in 1935).
 - (d) On amalgamation with the Institute of Chartered Accountants in England and Wales in 1957 the examinations overseas were phased out.
5. *Association of Certified and Corporate Accountants:*
 - (a) Source – 1905-55 *The Certified Accountants Journal* (later renamed *The Accountants Journal*).
 - 1960-68 the Association's records. These figures are an exception to (2) above since we have used actual figures for total overseas sittings. A number of non-Commonwealth candidates are therefore included, but these are a small minority.
 - (b) London Association of Accountants formed 1904, therefore no figures for 1905.
 - (c) Figures for 1915 (a War year) are not available.
 - (d) Figures for 1945 are not available (1946 substituted).
 - (e) Figures for 1955 are not available (1956 substituted).
6. *Institute of Cost and Works Accountants:*
 - (a) Source – *The Cost Accountant* (later renamed *Management Accountancy*).
 - (b) The Institute was formed in 1919, but no examination figures are available before December 1930.
7. *Institute of Municipal Treasurers and Accountants:*
 - (a) Source – *Local Government Finance*.
 - (b) Although the Institute was formed in 1885, very few candidates take its examinations overseas since they must hold 'a whole time appointment (whether established, permanent, temporary or probationary) as an officer of a local or public authority recognised by the Council of the Institute as discharging duties and functions similar to those exercised and performed by local and public authorities in England and Wales'.
 - (c) Accounts Clerk Certificate examination not included.
8. *Society of Commercial Accountants:*
 - No overseas breakdown available.
9. *Association of International Accountants*
 - (a) Source – Association records.
 - (b) The records give the total of examinees. Of this number it is estimated that approximately 80 per cent sit the examination overseas. We have therefore shown the figure of 80 per cent of the total of actual examinees.
10. By nature of the information available, these figures are very approximate and indicate trends only. For example, the ICWA decline 1967-68 is not apparent in their records of total overseas candidates. We have therefore shown these figures where available in addition to the approximate figures for Commonwealth sittings. The ICWA examinations were reorganised in 1964.
11. South Africa has been included throughout.

TABLE III
Commonwealth accountancy students trainees in Britain – by region

	1968-69			1967-68			1965-66		
	University	Technical	Professional	University	Technical	Professional	University	Technical	Professional
Africa	5		168	3		125		1,185	103
Asia	4		385	13		374		161	278
Australasia	—		4	—		6		2	2
Europe and Near East	2		18	1		20		33	22
Western Hemisphere	3		16	—		20		97	21
Total:	14	935	591	17	1,243	545	(15*)	1,478	426
<i>Notes:</i>									
University	– Source: Association of Commonwealth Universities. *Estimate.								
Technical	– Source: Department of Education and Science. Part-time (excluding sandwich) students not included.								
Professional	– Source: Institute of Chartered Accountants in England and Wales. Excludes students articled to members of other accountancy associations.								

back in these figures is that they do not include those Empire and Commonwealth students sitting examinations in Britain, who were likely to have been a

significant proportion of an overall total.

However, Table III gives the number of Commonwealth students taking courses in accountancy at

British universities and technical colleges in recent years as well as those entering articles with Fellows of the Institute of Chartered Accountants in England and Wales.

In 1965/66, for example, there were 1,478 Commonwealth students preparing for accountancy examinations full time in technical colleges, 426 known to the Institute to be undertaking articles and about 15 taking university courses. If we add to this the total of 6,000 students sitting papers in examination centres throughout the Commonwealth in the same year, we find that at least 8,000 students were working for British accountancy qualifications. These figures do not, of course, include the total number of Commonwealth students working for these qualifications as not all of them would be taking the examinations in any one year. On this basis it would not be a wild exaggeration to assume that the total number working for a British accountancy qualification could have been as high as 10,000. The high rates of drop-out and failure, particularly among those who prepare solely by means of correspondence courses means that a very small percentage of these would qualify. However, the influence remains in so far as the 'drop-out' and the 'failure' may still be regarded as 'qualified' and practise accountancy. It is recognised in Ceylon, for example, that a Part II pass in the ICWA examination is a qualification for employment in industry and commerce.¹⁷

The influence of the British accountancy bodies through the export of qualifications has been reinforced in recent years by the provision of special examinations and examination facilities. Since the Second World War the Association, for example, has provided special examination facilities in a number of countries by allowing newly emerging accountancy associations to use the Association's examinations as the basis for their own qualification. This has happened in Jamaica where the local association holds ACCA examinations in its own name. The papers are identical to those sat elsewhere for the Association qualification; only the title of the examination is changed. This facility is an expression of the close

¹⁷ F. V. Hayhurst, FCWA JDIPMA, unpublished paper delivered at Institute of Commonwealth Studies Seminar, May 1970.

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links which exist between the Association and the profession in the West Indies, where a large percentage of existing practitioners qualified by means of the Association's examinations.

The Institute of Municipal Treasurers and Accountants which, by virtue of its specialist character has not been greatly involved in overseas activities, has nevertheless exported its own qualifications and since 1963 has also developed a special qualification geared to the needs of a number of African countries. The 'Accounts Clerk's Certificate' was developed to provide a lower level qualification geared to the needs of local and central government accountants in East and Central Africa (at present Kenya, Zambia and Malawi). The candidates must have held a full-time appointment with a local or public authority or a department of the central government, and have held such an appointment for at least a year. The syllabuses of the examination are suited to local needs.¹⁸ Table IV shows the number of students taking the Accounts Clerk's Certificate in 1967/68.

Since 1960 the Institute has played a special role in the provision of Commonwealth qualifications through the work of the Overseas Accountancy Examinations Advisory Board. The Board's terms of reference are:

- (i) To advise overseas countries, when requested, on the conduct of accountancy examinations, and
- (ii) Where necessary, take responsibility for setting overseas examination papers and the marking of candidates' answers. This is done on the understanding that the country concerned will develop and organise its resources to enable it to assume full responsibility for the examinations as soon as possible; generally within six or seven years.

The Board is a sub-committee of the Joint Standing Committee of the three Chartered Institutes (England and Wales, Scotland, Ireland), although the adminis-

¹⁸ As well as general papers on the principles of accountancy and auditing, candidates are expected to have a knowledge of law, including constitutional and customary law and financial institutions.

¹⁹ Information supplied by the Institute of Chartered Accountants in England and Wales. The local accountancy body is expected to meet the costs of printing, postage, and examiners' salaries.

²⁰ Where knowledge of local taxation and law is involved the examiner is appointed locally.

TABLE IV

Number of East African students taking IMTA Accounts Clerk's Certificate 1967-68

		Passed	Failed	Total
Kenya	March 1968	28	18	46
	December 1968	30	15	45
Zambia	December 1967	8	7	15
	October 1968	11	10	21
Malawi	October 1968	10	8	18

Source: IMTA Annual Report 1968-69, p. 40.

tration is carried out by the English Institute. The Board 'requires evidence' that the body requesting help in running examinations has a 'proper constitution and bye-laws' and can provide local organisers and examiners.¹⁹ The local body is asked to provide syllabuses and these are approved by the Board and its British examiners.²⁰ For the first few years of each scheme the British examiners supervise the examinations, co-operating with local moderators who are expected to take over as examiners for the final years of the project. A number of such schemes have been instituted since the first official provision of such examinations was made for Southern Rhodesia in 1962. Apart from an 'unofficial' relationship with Ceylon which existed from 1960 to 1967, schemes have been agreed with Malaysia (1963), Ghana (1966) and Nigeria (1968). Further negotiations are at present under way with Hong Kong, Zambia, Kenya and West Indian bodies. The Board has also suggested that the New Zealand Society of Accountants take over responsibility for the provision of examinations in Fiji. The stimulus for this scheme was initially pressure from Southern Rhodesian members of the Institute who wanted Chartered Accountancy standards maintained. In Zambia, however, the pressure for local examinations comes from the government, which is demanding a Zambian profession capable of providing an indigenous source of advice on economic, financial and tax questions.

The existence of such schemes suggests that in many areas British influence is as significant as ever. For example, even the textbooks are vetted by British examiners, a process which is likely to lead to the elimination of texts which are not generally used in English accountancy education. Also, once a tradition of using such textbooks is established, it is difficult to change the system. There is little doubt that the scheme is fraught with tensions, deriving from conflicting demands for local independence and professional nationalism on the one hand, and the prestige of British approved qualifications on the other. The supervisory role of the English Institute may involve a form of patronage which Commonwealth bodies find difficult to accept. At the same time the English Institute, seeing itself as primarily a domestic organisation, has no wish to maintain these relationships beyond the six-year maximum, particularly as they involve an increasing drain on administrative resources. A successful conclusion to such an operation requires that the English supervisors report a substantial improvement in organisation of the examinations and standards of students taking them. This requirement can lead to resentment on the part of local associations whose recently acquired independence as a national body is threatened by the relation-

ship which they initially requested. A further tension which has arisen in the working of the scheme is that English supervision represents a threat not only to local accountancy bodies, but also to academic interests; particularly where candidates are prepared through local courses. The significance of academic interests where an accreditation system of professional qualification exists suggests an interesting theme which we cannot go into in depth now, but it is likely that where governments have been effective in bringing into being 'registered' accountants, certification has been effectively handed to academic institutions, a procedure which may effectively lower the degree of professional control which can be exerted on the development of the profession in the future.

Each of these new ventures comes at a time when nationalist reaction to metropolitan control is highly developed in the newly independent nations. The provision of such special schemes may lead not only to tensions in the relationship between British and Commonwealth bodies, but may lead to metropolitan demands for a level of syllabus complexity and standard which is irrelevant to the local situation. It is hoped by some that such schemes may prove to be the basis for the development of a Commonwealth Association of Accountants on the lines of those already existing in other professions such as Architecture, Law, Medicine and Surveying. One of the dangers of these Commonwealth organisations is that they will lead to attempts to establish standards and procedures which are essentially derived from British experience and have little relevance for developing countries. The genuine belief that 'high standards' are the greatest need should not, as is sometimes the case, be confused with a view that uniform standards are necessary throughout the Commonwealth, even where this may be a laudable aim for the future.

Registration and recognition

So far we have been concerned to outline the extent of the influence enjoyed by the British profession in the development of accountancy throughout the Commonwealth. We will now look in more detail at the feedback effect as illustrated by the struggles for registration and recognition. It is argued that a pattern emerged whereby new British associations in attempting to establish themselves overseas extended the struggle for recognition to colonial legislatures partly in an effort to strengthen their position at home. However successful the attempt to improve their metropolitan image was, the emergence of 'professional nationalism' tended to undermine their overseas influence.

The early years of professional accountancy in

Britain were marked by internecine conflict as new bodies emerged and attacked the privilege of the established associations. While battles for recognition divided the profession into opposing camps of established and outsiders, many looked towards registration as a means of finally unifying the profession.²¹ In the last decade of the nineteenth century nine unsuccessful private registration bills were introduced. During this period the Institute and Society proposed bills in opposition to one another, while the Scottish chartered bodies intervened to block the English Institute's attempts to limit registration to its own members. The first decade of the twentieth century, however, brought various joint attempts by the Institute and Society, as they grew closer together in the face of the demands and growing strength of a number of new foundations such as the London Association of Accountants, the Corporation of Accountants, and the Central Association of Accountants. The Corporation and the Association promoted their own bills in 1910 and 1912 in response to the joint efforts of the Institute and Society. All failed, and since this period of hectic activity only two unsuccessful attempts at registration have been made.²² In the later period, however, the English Institute was, to say the least, lukewarm about the need for registration, feeling that the consequence would be to raise the status of its competitors rather than aid its own members, whose status was assured.²³

The first decade of the twentieth century also saw the extension of activity associated with registration to Australia and South Africa. In Britain the conflict had primarily taken the form of the established bodies attempting to press for legislation guaranteeing the right of the 'qualified' accountant to a monopoly of 'accountancy work', which mainly referred to the work of the accountant in public practice. Initially, the Society and later those associations which followed in its iconoclastic traditions, fought to keep the pro-

²¹ A thorough discussion of the battle for recognition is to be found in Nicholas A. H. Stacey, *op. cit.*

²² The first was associated with the report of the Departmental Committee on the Registration of Accountants in 1930 and the second was a joint attempt by the Institute, Society and Association in 1945.

²³ As early as 1899, when the Institute was still caught up in the registration battle, *The Accountant* (Vol. XXV, 1899, p. 441) pointed out:

'If any legislation is to be attempted, it must be remembered that, whatever lines it may take, every accountant who is not a member of the Institute will gain immeasurably more by the change than any member of the Institute can hope to gain.'

During the twentieth century the Institute has never been wholeheartedly in favour of registration and once it had swallowed the Society the main force for registration was eliminated.

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fession open, at least until such time as they were safely included in the fold. The transposition of these battles to the Empire involved variations in the nature of the game. In South Africa, for example, the Society was closer to being the established body, while in Australia it also enjoyed great influence.

The first round in the registration efforts within the Empire occurred in Victoria in 1899 when the British Society entered into an agreement with several local bodies to promote a bill. The attempt brought a quick response from *The Accountant*:

'It is . . . not unfair to assume that this form of legislation would not be proposed unless it was designed to discourage the immigration of more qualified practitioners. . . . Both in Australia and South Africa the Incorporated Society has been quick to appreciate the advantages of expansion and affiliation.'²⁴

By this time the Institute was ruefully aware that the inward-looking policy expressed in its Charter put it at a severe disadvantage when it came to imperial policy:

' . . . it is, we think, absolutely essential that some means should be found of enrolling "native" colonials as members instead of depending entirely upon emigrants from the United Kingdom to maintain the supremacy of the Institute abroad.'²⁵

Despite constant reiteration of the need to amend the Charter in order to facilitate overseas expansion, this change never occurred. The final attempt in 1927 to amend the Charter to allow overseas articles brought the response at an annual general meeting:

' . . . It is undesirable to open the profession to be invaded by orientals. The proposed suggestion will have the effect of commencing the dilution of the profession with orientals. . . . In one hundred years time we shall see a coloured gentleman taking this Chair.'²⁶

The failure of this attempt was not, however, the result of a colour bar, but was due to the protests of the Canadian and South African professions who saw a threat to their own independence if the 'great parent body' were to extend its overseas activities.

Although the Australian attempt at registration failed, the Institute's consistent opposition to registration in South Africa was not so successful. The Society, by holding examinations in Australia and South Africa and by forming official overseas branches, was in a position to benefit from the closure of the profession in both Australia and South Africa, particularly if Chartered Accountants were

²⁴ *The Accountant*, Vol. XXV, 1899, p. 1142-3.

²⁵ *Ibid.*, Vol. XXIX, 1903, p. 738.

²⁶ *Ibid.*, Vol. LXXVI, 1927, p. 710.

disadvantaged by virtue of residential and other qualifications. Thus, with the Transvaal Accountants' Ordinance, the English Society through its Transvaal Branch successfully proposed a bill excluding non-residential practitioners. Despite petitions from the Institute and others opposing legislation, the preamble to the bill was found proved and its provisions accepted by the Transvaal Legislature. The Society's Branch now became a major power, incorporated as it was in the Transvaal Society of Accountants, a statutory body which was given the task of controlling a register of public accountants. The Act ruled that no one who was not registered 'shall describe himself or hold himself out as an accountant or as an auditor'. The Ordinance did, however, allow employed accountants to describe themselves as such in relation to their employment.

The Ordinance had several effects. First, it forced the Institute to take the Society seriously as an effective competitor, hastening the advent of joint efforts to protect members at home and overseas. Secondly, it persuaded a number of international London-based firms of Chartered Accountants to establish local residential partners in offices outside London and New York and as such it was a stimulus toward the extension of permanent offices throughout the Empire. Thirdly, it brought the London Association of Accountants directly into conflict with the Society. At the time of the passing of the Ordinance the Association was already espousing an Empire policy which was, if anything, more open and vigorous than that of the Society. The Association and its local members kept up a continuous attack upon the provisions of the Ordinance, which excluded them from public practice, an effort which came to a head in 1917 when the President of the London Association of Accountants in Johannesburg was charged with practising unlawfully but was cleared in court. Even so, in 1931 the Association continued to claim that its members were discriminated against in South Africa, 'aided and abetted by members of the Institute and Society resident in that country'. The fears of the Association were even more pronounced in a member's letter to the *Cape Times* in 1924 which claimed that a new registration bill relating to the Union as a whole had as its

'... real promoters ... the six foreign societies who constitute the London Accountants' Trust made up as follows (the 3 Scottish, 1 Irish, 1 English chartered bodies, and the Society of Accountants and Auditors, England). . . . The chief duty or function of the London Trust is to promote legislation for the exclusive benefit of its own members and the subordinate bodies which it controls in every British possession where it deems it expedient

to attempt it, its modus operandi being to first obtain control of the local society and thereafter use it as a "medium" for promoting legislation for its own benefit. . . .'²⁷

While this may have been the aim, it is very unlikely that the Institute or the Society had such overall control at this point in time. In fact, soon after its triumph in successfully promoting the Transvaal Ordinance, the Society began to experience reverses in its imperial policy. These were associated with the rise of 'professional nationalism'. The Society had failed to recognise that the local support they gained in promoting the Transvaal registration bill was less a 'pat on the back' for the London Society, than a 'slap in the face' for the English Institute. Only the Boer War had put off the day when the patronage of all metropolitan bodies could be dispensed with.

Registration movements were increasingly linked with growing nationalist sentiment in British territories. The New Zealand Registration Act in 1908, the Rhodesian Registration Act in 1917, the Indian Chartered Accountants Act in 1949, and the Chartered Accountants Act in Ghana in 1963 were all, in part, informed by nationalist sentiment associated with independence and they all operated to exclude the outsiders. The nationalist reaction was felt early in South Africa. By 1911 the Society was already opposing a new attempt to introduce Union legislation for all South African accountants, claiming that it was 'dictated by what may be termed growing national sentiment'.²⁸ The 'nationalist' reactions against metropolitan accountancy were viewed as serious obstacles to the expansion of trade by the metropolitan associations, which would not only affect the interests of British accountancy firms, but the economy of the Empire. In 1908 *The Accountant* was warning that:

'The tendency (to deny that it is reasonable for a qualified British practitioner to practise in all parts of the British dominions) must seriously interfere with the flow of capital from the mother country. . . .'²⁹

This justification of an argument for the free movement of accountants is still a major factor in relations between accountancy bodies throughout the Commonwealth, following the warning uttered by the Society in 1940 of:

'... the evils that can ensue when capital invested in a foreign country is deprived of the means

²⁷ A letter to the *Cape Times*, quoted in the *Certified Accountants Journal*, Vol. XVI, 1924, p. 197.

²⁸ President of the Society of Incorporated Accountants and Auditors, Cape Colony, in *Incorporated Accountants Journal*, Vol. XXIV, 1912, p. 37.

²⁹ *The Accountant*, Vol. XXXIX, 1908, p. 602.

which it chooses to verify the manner in which that capital is administered....³⁰

The major factor ensuring such protection in the face of professional nationalism has been the growth of international accountancy firms who work through locally qualified partners, associates and employees.

The New Zealand legislation of 1908 was repugnant to both the Institute and the Society who regarded the Registration Act not only as nationalistic but as yet another example of rampant socialism in that country, effectively recognising anybody who wished to call himself an accountant. The Institute was particularly incensed at the degree to which the government had been involved in promoting the new regulations and the powers which it had retained for itself. An editorial in *The Accountant* claimed that New Zealand had been 'bitten severely by the socialistic craze' which had put bankruptcy business into the hands of official assignees, had handed municipal auditing over to the Auditor General's Department, and estate administration to the public trustees. In this way 'a formidable array of purely business matters have been swallowed by the State'. It was, *The Accountant* claimed,

'An example of the dangers attendant upon professional legislation, when the subject is taken up by Parliament. No exclusive rights are conferred....'³¹

The natural product of these unnatural conditions was that accountancy had been monopolised by non-accountants. The Accountants' Board created by the Act included only government officials and a lawyer. All in all, *The Accountant* could scarcely recognise accountancy in New Zealand as 'a distinct profession'. This is an interesting reaction and points, in part, to the recognition that certain colonial professions were developing in a direction not as yet travelled in Britain – professionalism was in decay even as the professional bodies emerged as distinct occupations.

In Australia, the first anti-metropolitan rumblings also came early in the first decade of the century and were directed against the activities of the Society which was accused of acting unethically by canvassing for membership and lowering the standard of its examinations in order to increase the size of its Victorian Branch. *The Accountant* suggested that:

'Any British Society which claims to exercise an influence in accountancy by reason of embracing in its membership a number of colonial practitioners can only expect to have its claims recognised if all those practitioners are at least up to – if not above –

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the average level of accountants practising in that particular locality.'³²

The attack upon the Society had already been presaged in 1896 when the President of the Victorian Institute of Accountants claimed that the examinations of his own Institute were:

'... so stiff that many of the applicants whom they were compelled to refuse had gone to the other Society (the SIAA) and had been admitted....'³³

Thirty years later, the President of the Transvaal Society of Accountants complained that his society still did not control all entrants to the profession because of the favoured position of 'certain overseas accounting institutes or societies' whose standards no longer justified their privileges.³⁴

Of course, there may have been various reasons why the metropolitan qualifications were preferred by local students, not the least the fact that they were widely recognised. However, it is clear that accountancy did not escape the nationalist sentiments which developed in these settler areas nor the winds of change which blew in India, Africa and the West Indies after the Second World War. In Africa, in particular, the picture is complicated where the nationalist reaction has been associated on many occasions with a continuing tutelary relationship with the metropolitan profession.

The consequences of nationalist sentiment did not affect the practice of British accountants in India until after independence. The position of the Institute and Society was safeguarded under a succession of Companies Acts which imposed complete government control over the practice of accountancy. While government action was significant in the development of accountancy in all the Empire, it is probably true to say that in India it was more far-reaching than elsewhere. The Indian Companies Act of 1913 limited the audit of public companies to accountants holding a local government certificate, except where they were members of 'recognised' bodies, namely the Institute, Society and the Scottish and Irish chartered bodies. The above ruling brought very different responses from the Institute and the Association. *The Accountant* on this occasion managed to suppress its distaste for state control:

'Although we (the Institute of Chartered Accountants) are opposed to... undue interference on the part of the State... we are wholeheartedly in favour of a provision... which makes it compulsory that the auditors of public companies should be selected from the ranks of persons

³⁰ *Accountancy*, Vol. LX, 1949, p. 271.

³¹ *The Accountant*, Vol. XL, 1909, p. 118 (quoted from *The Accountants Magazine*).

³² *Ibid.*, Vol. XXVI, 1900, p. 970.

³³ *Ibid.*, Vol. XXI, 1896, p. 848.

³⁴ *Incorporated Accountants Journal*, Vol. XXXVII, 1925-26, p. 318.

licensed by the government department as being suitable persons. . . . This decision (to recognise only Chartered and Incorporated accountants) is . . . especially satisfactory because during the past few years some of these unrecognised bodies have been particularly active in India in enrolling natives as members. . . . This announcement will, it is hoped, not be without its effect in this country in as much as it must inevitably tend towards putting a stop to the wholesale enrolment . . . of members in India and other places abroad (and) . . . compels these unrecognised bodies to rely . . . for their support at home.³⁵

The view of the Institute, that the effect of the Indian Companies Act would be indirectly felt at home as it cut off British bodies from a supporting overseas membership, implies some recognition of the fact that overseas activities were a springboard for metropolitan expansion. However, neither the Indian legislation, nor legislation elsewhere, entirely blocked the Association's efforts. The Association published sympathetically an article in *The Insurance & Financial Record* of Calcutta, complaining that the Indian legislation:

' . . . has practically prohibited Indians from auditing the accounts of any public company unless they first obtain a certificate from a local government. . . . Only members of certain societies are recognised as ipso facto obviously now qualified . . . it is obviously the duty of the Government to abstain from creating "close corporations" of experts, mostly of British blood, whose limited number and high fees added to ignorance of vernaculars may render them unsuited, if not unfit, to audit the accounts of many indigenous companies . . .'³⁶

However, the Association's fears were not entirely realised as their membership was relatively successful in obtaining local government certificates, although the major recipients of these were holders of the Indian Government Accountancy Diploma which was started in the same year. Under the Indian Companies (Amendment) Act 1930 an Indian Accountancy Board was established. This centralised the control of an accountants' register under the supervision of the Governor-General who acted with the advice of the Accountancy Board which was made up of nominated members, both official and professional. The creation of the Board was perhaps the high point of Government control of accountancy as well as the high point of British influence – in 1932 the Board consisted of seven Chartered Accountants and one Incorporated

Accountant, six of whom were European. Again, nationalist sentiment was not absent. The Society of Professional Accountants of Bombay had already claimed in 1928 that government control had led to 'all the power (being) left in the hands of the members foreign bodies of accountants'.³⁷

While in Britain every attempt to introduce registration has been promoted from within the profession, in the face of government scepticism, in the Empire the administration played a much more positive role. Also, while the British professional associations experienced difficulty in persuading government of the need to exclude non-qualified practitioners from various areas of practice, colonial administrations often took the lead in attempting to control the occupation. In a number of areas, including India, the administration effectively wrested control of practice from the profession, exercising direct control. This tendency within the Empire was partly a result of the high level of professional employment within the administrative services and also a consequence of the colonial government's superordinate position and 'guardian' orientation which led to direct intervention in professional life of a kind which developed only slowly in Britain with the growth of social welfare provision and large-scale planning.

Alongside the major efforts directed toward the creation of exclusivity through registration in the Empire were the more continuous efforts aimed at achieving limited forms of recognition. Paradoxically, accountants have always regarded official recognition as the major criterion of success in their efforts to professionalise. The British accountancy bodies were, at the beginning of the twentieth century, largely concerned to secure official recognition of their members' auditing role; that only 'qualified' accountants should be allowed the privilege of auditing the accounts of public companies and government agencies. Each new accountancy body sought recognition in the audit clauses of company acts, as well as those relating to friendly societies and municipal corporations. Recognition through the audit clause of a municipal corporation bill became the major goal of any new association; a seal of official approval.³⁸ While failing to achieve a complete

³⁵ Society of Professional Accountants (Bombay), 'The Future of Accountancy in India – a Discussion', reprinted in *The Accountant*, Vol. LXXVIII, 1928, p. 336.

³⁶ *Certified Accountants Journal*, Vol. VI, 1914, p. 120.

³⁷ Legislation had initially created a living for accountants in public practice through the acts regulating the funding and accounts of railway companies in the first half of the nineteenth century and the later companies acts making provision for limited liability and public audits. The early accountancy associations took it upon themselves to persuade the government that this living should be restricted to 'professional accountants'.

³⁸ *The Accountant*, Vol. L, 1914, p. 403–5.

monopoly of accountancy work, the Institute and Society, along with the Scottish and Irish chartered bodies, did manage to monopolise the audits of municipal corporations from the 1890s to 1930s and friendly societies in the 1920s. The first success came in 1890 when the Accrington Corporation Bill specifically named Chartered and Incorporated accountants as eligible for appointment as auditors. This Bill became a precedent for subsequent acts, so excluding the newly formed associations. The new bodies, including the London Association, immediately began to sink a great deal of time and money into the attempt to achieve this form of recognition which became the hallmark of a professional coming of age. The Association claimed in 1930 that:

‘Our association has spent something like £3,000 in the last few years in Parliamentary expenses, Counsel’s fees, etc. in appearing before Parliamentary Committees.’³⁹

The breakthrough eventually came in the same year when the London Association was successful in petitioning before the local legislative committee of the House of Commons on the Cardiff Corporation Bill. The Corporation of Accountants was successful in the following year. General recognition was extended to these bodies by the Municipal Corporations Act of 1933.

The battle was not of metropolitan relevance only. Colonial administrations had enacted a succession of regulatory ordinances controlling the public audits of government departments and local businesses and excluding all but the established British associations from audit posts. As with many other colonial ordinances, these tended to be imitative, in that in territory after territory the English Institute, the Scottish Chartered bodies and the Society were named as qualified to carry out public audits. Apart from the few Incorporated and Chartered Accountants on the spot, these regulations provided further stimulation for the expansion of the London chartered firms who by the 1920s were operating throughout the Empire. Where they lacked a partner ‘in residence’ they could send an employee out from London to deal with the accounts. Despite the fact that colonial legislation tended to be imitative, giving advantage to the established bodies, outsiders such as the Association did make greater headway overseas than at home, particularly in those territories where they had established themselves as the dominant body of accountants. The Association, for example, held a favourable position in various West Indian territories between the Wars. In 1929 the Association

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complained vehemently that, while its members were excluded from the audits of English municipalities, they had already been recognised by a number of colonial governments, including British Guiana and the Federated Malay States. Also, the 1933 Act was seen as a go-ahead for the recognition of the Association throughout the Empire. The Association announced;

‘The officers administering the governments of the colonies, protectorates and mandated territories have been informed of the decision of H.M. Government in the United Kingdom that members of the London Association of Accountants should be accorded the privileges for practice as auditors and accountants on an equal footing with members of other bodies.’⁴⁰

The fact that recognition of the new bodies had advanced more rapidly in the Empire than in Britain was related to the administrative needs of colonial governments and reflected variations in the balance of power existing between accountancy bodies in various parts of the Empire.

Again, the first developments took place in Australia when the Victorian Local Government Act 1890 was amended to provide for a three-man municipal auditors board. The board was to enquire into the qualifications of auditors and grant certificates of competency according to ‘general conduct and character as well as ability’. Members of the Institute and Society were named as belonging to bodies whose members ‘shall without any further test of competency be entitled to a certificate of qualification’. A local body, the Victorian Institute of Accountants, was also included among the favoured. The Society described the amendment as ‘the event of the quarter’ and remarked:

‘It is a curious commentary on the position assumed by the Institute of Chartered Accountants in England and Wales that it is indebted to the Australian agent of the Society of Incorporated Accountants and Auditors for the first appearance of its name on the Statute Book of any country in the Queen’s dominions.’⁴¹

Twelve years later a similar board was set up in Queensland and New South Wales followed suit in 1915.

In Australia, India, South Africa and New Zealand, early development in legislation indicated a much more intimate relationship with government; a greater readiness of authority to get involved in efforts to control the field of accountancy practice. In each case, however, the central problem of control,

³⁹ Report of the Departmental Committee on the Registration of Accountants, Minutes of Evidence, HMSO, 1930, p. 194, section 3.

⁴⁰ *The Certified Accountants Journal*, Vol. XXIV, 1932, p. 100.

⁴¹ *Incorporated Accountants Journal*, Vol. III, 1892, p. 103.

that of defining the field of accountancy remained unsolved so that the privileges accorded to the established were always under threat from outsiders both in Britain and the Commonwealth.

Conclusion

The object of this paper has been to demonstrate that the development of the accountancy profession in Britain cannot be viewed in isolation. While the proliferation of accountancy bodies resulted, in part, from attempts by the 'established' accountants to restrict entry into the profession, so setting into motion a continuing cycle of foundations and amalgamations, this process was reinforced by the Commonwealth activities of the 'outsiders'.

It has also been argued that the English Institute was never as dominant in the Commonwealth as it was at home, one consequence of its inward-looking policy was to leave room for the international expansion of its competitors which helped in direct and indirect ways to increase their prestige at home.

Finally, it would be true to say that even today

there are 'outsiders' – among those excluded from the recent amalgamation scheme⁴³ – who still look to the Commonwealth as a source of examination candidates and recruits and as a means of extending their influence and increasing their status. For example, the Association of International Accountants, unrecognised by the Board of Trade under the 1948 Companies Act, has strong Commonwealth links. This body is at present caught in a vicious circle and so far lacks the success of the early 'outsiders'. Attempts by its overseas members to gain local recognition tend to founder when the Commonwealth government is informed of its UK status.

However, it is a reasonable assumption, especially given the past development of the UK profession, that had the amalgamation scheme succeeded, the withdrawal of the Association and the Institute of Cost and Works Accountants from their Commonwealth commitments would have created favourable conditions for the rapid Commonwealth expansion of these newer associations although not to the same extent as in the past because of the current strong position of the indigenous associations.

⁴³ The six-year-old scheme to integrate the six major accounting bodies in Britain (the English, Scottish and Irish Chartered Institutes, the Association of Certified and Corporate Accountants, the Institute of Cost and Works Accountants, and the Institute of Municipal Treasurers and Accountants) was defeated by a vote of the English Institute's members in August 1970, 55.2 per cent of those voting being against the plan, although the other bodies had

previously voted in favour. *The Times* (15 August 1970) gave the opinion that 'The main reason for the defeat was a fear among many members of the English and Scottish institutes of chartered accountants that a merger with other bodies would lower the standing and professionalism of their organisations'.

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Economic Information in Financial Ratio Analysis: A Note

Haskel Benishay

I. Introduction

A firm transforms resources into products in a perennial attempt to maximise profits. In order to discharge its functions and attain its goals, it is forced to make decisions in the face of uncertainty. The final outcome of the firm's operations is influenced, on the one hand, by the firm's decisions, and on the other by the events the world thrusts upon it.

Production and finance best exemplify decision areas of the firm. Production decisions deal with the relative combination (mix) of inputs. How much capital? How much labour? How much of capital grade X? How much of labour skill Y? Financing decisions are made on how to obtain the services of capital. Should capital (machines, structures, etc.) be owned? Should it be rented? Should money be borrowed to acquire capital? These classes of decisions and others determine the fortunes of the firm in so far as the firm is in a position to influence its own fortunes. On the average, wise decisions bring forth favourable outcomes, unwise decisions produce misfortunes.

The world outside the firm must also be reckoned with. It may play havoc with wisdom and folly. The best laid plans of management may come to naught if demand for the firm's product declines steadily. *Vice versa*, some ill conceived plans may ride high on the soaring waves of rising product demand.

On a general conceptual level, and in essence, ratio analysis can be described as a quantitative technique which employs the ratios of several pairs of quantities generated by the firm to represent objectively, outcomes of decisions made by the firm and results of outside conditions surrounding the firm. For example, when a ratio analyst wishes to evaluate the way in which a firm combines inputs he may compute ratios of each input to total product or of each input to the total of inputs. If an analyst is interested in evaluating the way in which the services of capital were secured, he may compute ratios of debt to total assets and ratios of leased property to total assets. The performance of the company as a whole may be represented by profit ratios.

'Financial ratio analysis' is essentially a subset of

'ratio analysis'. The objectives of the two are the same, but the number of areas under the scrutiny of financial ratio analysis is smaller. Whereas general ratio analysis may, in principle, concern itself with any and all aspects of the operations of the firm, financial ratio analysis, having originated in accounting, concerns itself in practice with ratios relating to balance sheet and income statement information. Among decisions it does not consider are those made by the firm in regard to the labour force mix and advertising effort. Recent trends, however, indicate a steady increase in the domain of financial ratio analysis pointing toward an ever wider inclusion.

At their idealised best financial ratios provide a meaningful and unbiased quantitative representation of the results of internal decisions and external conditions. They are meant to serve as tools for detecting irregularities in managerial behaviour and company fortunes. In practice, however, the construction of financial ratios is often a somewhat haphazard and non-directed activity. Consequently, financial ratios frequently lose in meaningfulness and objectivity.

In the financial analyst's trade, ratios are frequently used tools which must be employed with diagnostic skill, empirical sense, and good judgement. Yet these tools are often blunted or rendered useless by the corrosive powers of redundant ratio computations, ignorance of empirical facts and lack of interpretive sophistication. There exists a persistent tendency to compute too many ratios and to present them as if they were, truly and logically, independent units of evidence. A ratio of an individual company is often compared to the average ratio of the industry of which the company is a member without knowledge of the degree of divergence which can be considered normal for the industry. There exists a tendency to ignore the possibility that a significant divergence of a financial ratio from the industry average can reflect favourable conditions at one time; yet at another, unfavourable conditions, depending on the level of profit expectations facing the company and the environment in which it operates.

This paper indicates the difference between

repetitive-redundant and informative-independent ratios, considers the importance of the point of view by which the analysis is to be guided, and views the conditions under which the analysis is meaningful and relevant. In addition, the paper emphasizes the need for empirical knowledge of the variability normally inherent in financial ratios and highlights the importance of awareness of underlying conditions and prospects of the company for the evaluation of a given ratio divergence.

II. Logical redundancy and independence

Logically redundant financial ratios are often computed in the preparation of financial reports and treated as independent information units. To the extent that a given ratio is merely another form of a ratio or of ratios already computed, it is redundant i.e. it does not add any new information. Such a ratio is often computed with no cognisance of its dependency, in which case it *may appear to reinforce* the particular message contained in the ratio or ratios from which it can be logically derived and thereby bias the conclusions based on financial ratio analysis.

If a financial ratio of A to B and A to C is given, then the provision of the financial ratio of B to C is a provision of a redundant piece of information. The first two ratios clearly and unequivocally imply the third. If A/B equals four and A/C equals five, then clearly B/C equals 1.25 (A/C divided by A/B). The representation of B/C as independent and logically separate information is clearly misleading. Similarly, when the ratio of E to F (E/F) and the sum of E/F and G/H (E/F+G/H), are given, the ratio G/H is a logical consequence. Numerically, if E/F equals ten and (E/F+G/H) equals 11, then we can easily infer that G is equal to H or G/H equals unity.

The number of basic, logically independent, and non-spuriously informative ratios depends on the number of categories of the balance sheet and income statement chosen by the analyst. The more detailed the classification and the finer the breakdown, the larger is the number of independent ratios. Generally speaking, the number, m , of independent ratios will be equal to the total number, n , of categories chosen to represent assets, liabilities, net worth, and income statements (sales) items, *minus one or minus two*. In Case I, the balance sheet asset categories chosen by the analyst sum up to total assets, and the balance sheet liability and net worth categories chosen by the analyst sum up to total liabilities and net worth. Under these conditions, the number of independent ratios, m , equals the number, n , of categories chosen to represent balance sheet and income statement items *minus two*. In Case II the sum of asset categories

chosen by the analyst is smaller than total assets and/or the sum of the chosen categories in the liability and net worth section is smaller than the total value of the liabilities plus net worth. Under these conditions the number of independent ratios, m , equals the number, n , of chosen categories *minus one*.

Case I

We show Case I in the context of a particular balance sheet income statement breakdown which includes five categories for assets, three categories for liabilities and ownership, and three categories for sales. The specific categories are:

Assets:

- (1) cash
- (2) receivables
- (3) inventories
- (4) securities
- (5) fixed assets

Liabilities and Net Worth:

- (1) current liabilities
- (2) long term debt
- (3) equity (net worth)

Sales:

- (1) sales (total revenue)
- (2) net profits
- (3) interest payments

This classification consists of 11 categories in all. Several points are worth noting. The sum of the first group of five categories equals total assets. The sum of the second group of three categories equals total liabilities plus net worth. The sales categories contemplated initially were: (1) 'costs other than interest payments', (2) net profits and (3) interest payments. We chose, however, to represent these three categories via the following three: (1) sales, which is the sum of the three, (2) net profits and (3) interest payments. The two representations are logically identical because of the basic notion expressed in the identity known as: 'the whole is the sum of its parts'. 'Sales' minus 'net profits' minus 'interest payments' will yield 'costs other than interest payments'. 'Net profits' plus 'interest payments' plus 'costs other than interest payments' will give 'sales'.

Since we are dealing with ratios, we are not concerned with the value of the variables as such. It is the relation of the variables to some meaningful base which is of interest. Since, in principle, any one of the 11 categories can be chosen as a base and the remaining ten compared against that base, the choice of the 11 categories implies the choice of ten independent ratios. The ten will be independent in the sense that none could be derived by means of formal logic from the others. A large number of sets of ten independent ratios can thus serve as basic independent information

units. The particular set which will be chosen should be that set of mutually independent ten ratios which best instructs and informs the party for whose point of view the financial report is prepared.

To generalise, a set of n meaningful categories of balance sheet and income statement data will yield a set of $n-1$ independent ratios. The choice of categories is to be governed by the point of view and interest of the user.

But even the $n-1$ ratios in our case or the ten ratios in our example, are not all truly independent. In our case we have all the categories of assets and all the categories of liabilities and net worth. Consequently we can utilise a well-known accounting identity to advantage. The identity: assets equal liabilities plus net worth, is built into accounting information automatically by the accounting rules for information handling. In terms of ratios the accounting identity simply means that the *ratio of assets to the sum of liabilities plus net worth* will be identically equal to unity, an additional piece of ratio information given *gratis* under the conditions of this case. And as double entry accounting system and this identity are inseparable, and since information emanating from such a system is sure to reflect this identity, we need be given only nine independent ratios for the 11 classification categories in our example. More generally, n minus 2 basic ratios are needed to represent logically independent ratio relationships between n classification categories of the balance sheet and income statement when all categories of assets and all categories of liabilities and net worth are given.

The numerical example below provides an illustration of a set of nine independent ratios necessary to represent the independent ratio information contained in the 11 classification categories above:

(1) inventories/sales	=0.100
(2) receivables/sales	=0.020
(3) cash/sales	=0.030
(4) securities/sales	=0.010
(5) fixed assets/sales	=0.140
(6) current liabilities/sales	=0.040
(7) long term debt/sales	=0.060
(8) profits/sales	=0.020
(9) interest/sales	=0.005

Any other ratio can be derived from this basic set of nine. For example, the ratio of net worth to sales, not given above, can be stated logically as follows:

- (a) assets=liabilities plus net worth (known accounting identity)
- (b) assets/sales=(liabilities plus net worth)/sales
- (c) net worth/sales=(assets/sales) minus (liabilities/sales).

And then derived numerically through the substitution

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of numerical values into the logical statements.

(A) assets/sales=0.30 (sum of ratios 1, 2, 3, 4, 5 above)

(B) liabilities/sales=0.10 (sum of ratios 6 and 7)

(C) net worth/sales=0.30-0.10=0.20.

The derivation of the ratio of profits to total assets from the basic set can serve as another example. The ratio of profits to sales (given), over the sum of the ratios of current assets to sales and fixed assets to sales (given) will yield the desired result.

$$0.020/(0.100+0.020+0.030+0.010+0.140)=0.066$$

The number, n , of basic categories to be chosen will depend on the interests of the consumers of ratio information. Take our preceding example as a benchmark. Suppose that keen interest now develops in sub-categories of inventories. As a result, inventories will no longer be represented appropriately by a single category but rather by perhaps three separate categories: (a) raw material inventories, (b) work in process inventories and (c) finished goods inventories. Thus, with this new interest there will be seven rather than five asset categories, (1) cash, (2) receivables, (3) raw materials inventories, (4) work in process inventories, (5) finished goods inventories, (6) securities and (7) fixed assets. Consequently the number of basic categories, n , increases from 11 to 13 and the number, m , of independent ratios increases from 9 to 11.

Case II

Case II differs from Case I in that the balance sheet asset categories which are of interest do not sum up to the totality of assets and/or the balance sheet liabilities and net worth categories which are of interest do not sum up to the totality of liabilities plus net worth. Under these conditions the equality between total assets and total liabilities and net worth, and its concomitant implication that the ratio of total assets to liabilities plus net worth is unity, can no longer be relied on. Consequently, one more independent ratio is required, and n basic categories produce $n-1$ independent ratios rather than $n-2$. To illustrate, let us return to the original Case I example above as a benchmark. Recall that in it the sum of the five categories of assets, (cash+receivables+inventories+securities+fixed assets), equalled the totality of assets. Now assume that everything else in that example remained unchanged except that interest is focused only on two asset categories rather than five, say on cash and receivables only. Under this assumption the accounting identity between the sum of all assets and the sum of all liabilities and net worth would no longer be in effect for the chosen categories because the two asset categories do not sum up to total assets. Consequently one 'free' piece of information is no

longer available and the number of independent ratios would be $n-1$ rather than $n-2$. Thus, focusing on two rather than on five asset categories changes the total number of focal categories, n , in the original example from 11 to eight and the number of independent ratios, $n-1$, from nine to seven. If you further assume that interest lies in only two of the three categories in the liabilities plus net worth section, say only in long term debt and in equity, then our chosen number of focal categories, n , will go further down to seven and the number of independent ratios, $n-1$, to six.

III. Stochastic or correlational dependence

In the preceding section, the concept of *logical* independence between financial ratios was discussed, the need for logical independence between the basic ratios was pointed out and the basic set of independent ratios was concluded to be smaller than the number of balance sheet and income statement classification categories. A ratio was said to be independent from other ratios when it could not be derived from them by means of logic. But logical independence between the basic ratios is not the only relevant consideration for the selection of ratios. The choice of the basic set of independent ratios should also be governed, as much as possible, by the extent of the stochastic independence of the ratios under consideration. All other things being equal, the basic set should have the smallest stochastic or correlational dependence between the ratios of the set.

Stochastic dependence of any two ratios can be defined operationally as the extent of the correlation across firms between the two ratios. Thus, high correlation defines operationally high stochastic dependence; low correlation, low stochastic dependence. What constitutes the dividing line between high and low correlation is a matter of the context within which the financial ratios are computed.

Stochastic dependence can be illustrated by the relationship between 'total debt to sales ratio' (the sum of the ratios of current liabilities to sales and long term debt to sales in the preceding example) and the interest payments to sales ratio. The ratio of interest payments to sales would be expected to vary directly with the ratio of total debt to sales because (1) interest payments depend on the amount of debt outstanding, and (2) because the interest rate varies within more or less prescribed bounds, say between 4 and 6 per cent. Across a group of firms in the same industry, one would observe empirically that high debt to sales ratios are associated with high interest to sales ratios and low debt to sales ratios with low interest to sales ratios.

As in the debt-interest example above, one might expect in general a high positive relation across firms

between stock items on the balance sheet and their flow counterparts on the income statement and consequently between the ratios of stock and flow items to a common base. Flows can usually be predicted from their respective stocks within a range of predictable error and *vice versa*. The net informational benefit derived from including in the same set both the ratio of a particular stock to a given base and the ratio of the flow counterpart of this stock to the same base will be far smaller than the amount of information obtained from two stochastically independent ratios. Therefore, it may often be quasi-redundant to include a stock ratio and its related flow ratio in the same basic set. Of the nine basic logically independent ratios included in the previous section, the interest payments to sales ratio adds little information to the ratio of short and long term debt to sales and might be excluded from the set with relatively little informational loss.

IV. The vantage point

Numerous combinations of m logically independent ratios may be selected to represent the set of independent ratios for n meaningful categories. In the first example for Case I, many other sets of mutually independent groups of nine ratios could have been selected to represent basic relationships. What then is a best basic set? The determination of the most appropriate set depends on the point of view of the party or group for whose benefit financial ratios are computed. The interested groups may have diverse and sometimes conflicting interests. Stockholders, lenders, management, or a private group interested in a prospective merger will be interested in ratio information for different purposes. The interests of such diverse groups may be sufficiently different to call for different representation of the m basic ratios, to suggest the necessity for more than one base, and even to affect the very choice of the basic number of classification categories, n .¹

The different sets of basic ratios can differ from each other in several respects. (1) The ratios may be taken relative to two, three or more bases, not necessarily one. In the first example of Case I above, any one of the 11 categories could have served as a base for the remaining ten. (2) The ratios may have two or more bases linked indirectly. Many combinations of m indirectly linked ratios are possible for a given set of n classification categories. For an illustration of indirect linkage, consider hypothetical categories C_1 , C_2 and C_3 . A common linkage for these categories will be C_2/C_1 .

¹ Ideally, management should be interested in the viewpoints of the various consumers of accounting information and provide a basic set of n categories sufficiently detailed to enable the collapsing of smaller categories into larger ones as needed and the computation of ratios from different vantage points.

C_3/C_1 , where the common base is C_1 . An indirect linkage for the same categories is C_2/C_1 , C_3/C_2 , where there are two bases, C_1 and C_2 . In principle, it is always possible to transform by means of logic, any group of indirectly linked m ratios with a given amount of information into a group of m ratios linked directly to a common base and representing the same amount of information. For m independent ratios, some indirect linkage combinations are suggested naturally by the vantage point of the user of financial ratios.

Stockholders may be most interested in an evaluation of the management of the firm and the objective market conditions facing the firm. They are primarily interested in return on assets and more importantly in returns on net worth. Given the nine basic ratios in the first illustrative example of Case I as a starting point, stockholders will probably prefer to substitute a ratio of profits to net worth for a ratio of profits to sales. As they are also interested in the safety of their equity investment, they may prefer to have the long term debt to sales ratio replaced by the debt to net worth ratio to obtain an instant picture of leverage.

Short term lenders, like suppliers and bankers, tend to view the indebted firm as (1) a going concern, (2) an entity subject to the possibility of sudden disaster. They would like to evaluate the ability of the firm to pay short term liabilities from the *normal* sources of cash, i.e. cash sales and collections from accounts receivable outstanding. They would also be interested in knowing the extent of the protection afforded them in *abnormal* times of liquidation. Their first interest may require an altogether different set of basic classification categories, specifically, a more detailed classification yielding, separately, collections, cash sales and categories of interest payments. Their second interest may call for a substitution of the ratio of current assets to current (or total) liabilities for the ratio of current assets to sales in the illustrative nine ratio example above, so that the extent to which current liabilities may be met by the liquidation of current assets in times of need may be directly evaluated.

V. Why and when should financial ratios cluster?

The existence of the conditions listed below will contribute to similarity, and therefore will bring about a smaller variability or clustering of financial ratios in a given group of firms.

1. Homogeneity of the product or service produced by the group.
2. Rational and consistent behaviour on the part of the managers of the firms in the group and a persistent attempt to maximise the value of the firm on the part of managers.

3. Ability on the part of managers to learn from their resource combination and financing experience over time, the optimal utilisation of resources and sources of capital.

4. Similarity in the personal tastes and preferences of managers in regard to risk.

5. Similarity in technologies of the various firms in the group.

6. Similarity in the accounting practices of the various firms as to depreciation, inventory valuation, etc.

Firms which produce the same product, which are subject to the same production constraints and market conditions, which have similar accounting practices and which are not dissimilar in other relevant respects will tend to end up with similar mixes of resources and capitalisation optima, and, therefore, similar financial ratios. On the basis of the preceding rationale, ratio analysis should be performed against the background of the average of the relevant group or the industry and against the 'expected' or 'intrinsic' or 'normal' variability in this group or industry.

As a consequence of the preceding discussion, a warning must be sounded. Financial ratio analysis often does not apply! With firms merging and diversifying more than ever it is becoming increasingly more difficult to find groups of firms or 'industries' producing a reasonably homogeneous product. As a result of increasing diversification, it has become increasingly less useful to apply financial ratio analysis to legal entities like corporations. It is becoming almost mandatory for intelligent financial ratio analysts to obtain their basic information from the level of the plant or the subsidiary which produces one product and compare it against information from other plants producing the same product. It is not very useful to compute ratios from the level of the whole multiproduct corporation, unless, and it is unlikely, the mix in the group is highly similar.

VI. Expected or 'normal' variability

Too often, medians or means but no variability estimates of industry ratios are provided by financial services to serve as yardsticks of comparison. This is not enough. In order to determine whether the divergence of a ratio of any particular firm from the industry average is significant, one must have empirical knowledge of what constitutes, in the industry under consideration, a 'normal' divergence. A given divergence from an average may be 'normal' in one industry but highly unusual and therefore 'abnormal' in another. For this reason, a *computation of the standard deviation or some other measure of variance (as the range) must be provided before meaningful comparisons can be made*. These direly needed measures of diver-

gence are seldom available. As a result, the comparison of single firm ratios to industry averages is rendered highly subjective and arbitrary.

The variance of balance sheet and income statement ratios within an industry is likely to vary with the homogeneity of the product or product markets of the various firms constituting the industry. The more homogeneous the product and the more similar the market conditions, the less variant are the ratios.

VII. Are 'large' deviations from the mean 'good' or 'bad'?

One may go through a whole sequence of steps to compute a financial ratio and the extent to which it deviates. What does it all mean when all is computed? Unfortunately, in most cases, the interpretation of deviations can only be said to be unequivocally questionable. A given deviation of a financial ratio from the norm, even if it is way out of the normal range, does not necessarily spell out one particular interpretation independently of other considerations. A given deviation may sometimes reflect success and sometimes failure depending on other conditions. For example, an unusually high debt to equity ratio may result from both favourable and unfavourable circumstances. On the favourable side this may have resulted from the fact that prospects of the company are very good, i.e. expected income is much higher than current income and therefore planned expansion through borrowing occurred to utilise the rising level of opportunities. On the unfavourable side, it may result from (1) mismanagement, i.e. lack of understanding of the true risks involved in the increase in debt; or (2) past losses which have reduced the equity of the firm. The appearance of relatively high debt to equity ratio cannot serve as a basis for an *automatic* decision that the underlying conditions are favourable (or unfavourable). The past profit performance of the firm and/or its future prospects must be brought into the picture and considered before interpretation is attempted. If the firm has been losing money, then a higher than average debt-equity ratio is 'bad'. If the firm has been growing steadily, a higher than average ratio may simply reflect the increasing level of confidence and as such may be a 'good' sign.

Ratios of inventories to sales (or to any other base) fall in a category similar to that of the debt-equity ratio. The mere appearance of high or low relative levels of inventories does not necessarily imply any one unequivocal interpretation. Relatively high inventories can occur as a result of 'stocking up' in response to current expectations of pepped up future sales or as a result of 'being stuck' because past expectations about current sales were too optimistic. Again, knowledge of the trend is necessary. The trend

of sales overtime is an absolutely indispensable datum for the interpretation of a divergent inventory to sales ratio.

Similar additional information is often required for other ratios in the traditional set provided in the example above. A relatively high receivables ratio may reflect worsening control of the collection period. But it may also reflect an aggressive and businesslike policy of granting credit by the firm, a policy whose final outcome may be increased sales and increased profits. Without information about such aspects of the company's operation no unequivocal conclusion can be made.

Ratios of securities and cash to sales (or to some other base) which are higher than usual may reflect 'under-optimal' caution. But they may also reflect a preparation for fixed assets acquisition. And again, more information is needed about underlying conditions. A larger than usual positive divergence of one firm's ratio of fixed assets to sales from the average of the group can be 'good' if it reflects investment in fixed assets motivated by confidence and 'bad' if it reflects a contraction which, due to lags in adjustment, reflects itself first in current assets and only later in fixed assets. And again, as before, more information is needed about the background of events, underlying conditions and historical framework. Similar statements can be made about almost any other ratio.

It must therefore be borne in mind that the divergence of financial ratios out of the normal ranges of variability should be usually taken only as signalling the need for obtaining more information about the time pattern of the company's fortunes and its future prospects. A useful practical dictum to bear in mind in this connection is: obtain time series data for the basic quantities on which the ratios are based and let them illuminate the message of the financial ratios.

VIII. Some concluding comments

We have attempted to point out the pitfalls associated with an indiscriminate proliferation of ratios. We have suggested that once a classification of basic income statement and balance sheet items, n categories in number, is decided upon, the number, m , of independent ratio computations is automatically determined. The choice of the particular basic classification of n items and its associated set of m ratios should be determined by the point of view of the party for whose benefit analysis is conducted. We have emphasised that the deviation of a particular ratio from the average of the industry must be evaluated in the light of the average deviation of ratios in the industry, lest comparisons become arbitrary. Finally, we have warned about unsophisticated interpretation of large deviations and suggested the need for time series data of the basic classification categories.

Jacob de Metz's 'Sendero Mercantil': An Unrecorded Book on Accounting, 1697¹

B. S. Yamey

The Economisch-Historische Bibliotheek in Amsterdam possesses an early book on book-keeping in Spanish which does not appear to have been recorded either in the literature on the history of accounting or in *Palau y Dulcet*. The title page of this book is as follows:

SENDERO
MERCANTIL
Que contiene 240 Preguntas fundamentales con sus Respuestas, para saber destingir entre DEVE a HADE AVER, Y absolver en algunas ocasiones las Dudas, que se podran offrescer en asentar las partidas en el
'MANUAL
Para de ahi ser transportado, al
LIBRO GRANDE
de CAXA.
Hecho por Industria y Despeza de
J. D. METZ
Impresso en AMSTELDAM,
En Caza de Juan Ewoutsz, Año 1697.

Freely translated, the title is: 'Mercantile Pathway, containing 240 fundamental questions and their answers, to enable one to distinguish between debit and credit, and on every occasion to remove doubt as to how to present and record the entries in the journal and to transfer them from here to the ledger. Made by the industry and effort of J. D. Metz.'

Indications in the book itself suggest that the author, Jacob de Metz (the form of the name appearing elsewhere in the book), was a member of the Portuguese Jewish community in Amsterdam. Various prefatory sections are subscribed by names of Jewish origin, and two dates are of the Jewish calendar. A kind of certificate of competence is included among the preliminary matter. It is by

Abraham de Souza and, unlike the rest of the book, is in (old) Portuguese. He writes that, having practised with de Metz and knowing his work, he can testify that de Metz is fully competent to practise and teach the art of accounting. Not only does he know the subject in 'our Portuguese tongue and with the appropriate Portuguese terms', but he is also conversant with the subject in Flemish.

The book is short and small: it consists of 69 pages, each $8\frac{1}{4} \times 11\frac{1}{4}$ cm. Apart from a dedication to Don Francisco Suasso, Baron de Abernas,² a statement of approbation, a laudatory verse ('Aplauso Harmonico') by Daniel Levi de Barrios,³ the author's prologue, and the above-mentioned certificate by Abraham de Souza, the volume consists primarily of about fifty pages of text, preceded by a table of contents, and completed by a page of errata which also states that the book is sold in the author's house, and which is dated 'Año 5457' – a year in the Jewish calendar which covered the period from 27 September 1696 to 15 September 1697. The text itself consists of 240 questions and the answers to them ('Preguntas' and 'Respuestas'), grouped into 18 chapters ('Capitulos'), beginning, logically, with 'Del Inventario en el Principio' and ending with 'Tratado del Balanço'. The catechism serves to explain how one distinguishes the debits and credits in various transactions so that proper entries can be made in the journal ('manual') and be transferred from there into the ledger ('libro grande de caxa').

By the end of the seventeenth century the expository device of questions and answers grouped by topic was well established in the Low Countries. It may have originated with Simon Stevin, whose pub-

¹ I am most grateful to the following for their valuable help: Dr A. Stolp, Mrs Alicia Merrett, Henry L. V. de Groote, A. L. Gooch and Michael Jacobs.

² Don Francisco Suasso, Baron de Abernas, was the son of the first Baron, Don Antonio Lopes Suasso, who was a prominent member of the Portuguese synagogue in Amsterdam, and who was ennobled by Charles II of Spain whom he served as agent. See J. Zwarts, *Hoofdstukken uit de Geschiedenis der Joden in Nederland*, Zutphen, 1929, p.213.

³ De Barrios is described in Zwarts, *ibid.*, p. 109, as the poet of the Portuguese Jewish community in Amsterdam.

lished work on accounting includes dialogues between himself and his royal pupil, Prince Maurice of Orange. It was more fully worked out by Hendrik Waningen in his *Tresoar van 't Italiaens Boeckhouden* (first edition, 1607); and it is to be found also, for example, in the first book by the self-styled 'Hollandais' de la Porte, *Le Guide des Negocians* (first published, 1673). But de Metz's *Sendero* is unusual in that it consists entirely of grouped questions and answers, and has no specimens or models of entries, accounts or account-books.

De Metz's exposition, as distinct from the form it takes, appears to be original, in the sense that it does not appear to be based on any earlier publication, although it naturally covers ground already well-tilled in earlier books. However, there are a few echoes both of Waningen's *Tresoar* and of de la Porte's *Guide*. Thus, to take one instance, the full title of the *Sendero* includes in it the number (240) of questions and answers. The same is true of the full titles of the *Tresoar* and the *Guide* (the numbers being 530 and 'environ 300', respectively). Further, the table of contents preceding Waningen's section of questions and answers – the bulk of the book – lists the number of questions in each sub-section, and shows the total 'Comt Vragen ende Antwoorden . . . 530'. De Metz's index gives the same detail, and ends with the total: 'Son Preguntas y Respuestas . . . 240.' A closer similarity to the *Guide* is in the use by de Metz of a general account for merchandise, 'Mercaderias generales'. De la Porte was one of the earliest authors to introduce such a general merchandise account (as distinct from particularised accounts, one for each type or lot of goods), with a similar title.

These echoes can establish no more than that de Metz may have been acquainted with some earlier books from which he borrowed some details. But the differences between the *Sendero* and each of the other two books are very much greater than any similarities. For example, de la Porte's exposition includes detailed instructions about the keeping of various subsidiary account-books which are not mentioned in the *Sendero*. And whereas de la Porte has sections on subjects such as 'Troquer', 'Assurances', 'Navires' and 'Foyers ou Payemens Public' which have no counterparts in de Metz, the latter has sections on, for example, 'Comprar y Vender Acciones en la Compañia de la India' (to buy and sell shares in the India Company) and 'Recebir Acciones en Empeño' (to receive shares in pledges), which are not to be found in de la Porte.

The final question and answer in the *Sendero* is as follows: P. 21. Aviendo hecho todo esto nesecitese algo mas; R. Otra Coza no, si no renovar los numeros en el A.B.C. de las hojas nuevas, y continuar como

de antes en estos Libros en notar sus Negocios con muchos Avanços, que nuestro Señor Concede a sus temientes, Amen'. (Having done everything, is something more necessary? Nothing else, but to place the new folio numbers in the ledger's index, and continue as before in these [new] books by entering your transactions with much profit, which our Lord grants to those who fear him. Amen.) The author was perhaps somewhat optimistic if he expected the reader to be able to keep a set of accounts on the basis of the instruction given in the *Sendero*, for it is rather condensed in parts, and the absence of illustrative examples is a serious drawback. Nevertheless, the exposition, besides being economical, is also helpful. A reader who had some familiarity with business and books of accounts would have profited greatly from a study of the *Sendero*. And the discussion of the balancing and closing of the ledger is excellent.⁴

It is doubtful whether de Metz's *Sendero* influenced any subsequent publications in Spanish. Certainly there appears to be no connection between it and the next book on accounting in Spanish, which, as it happened, was also published in Amsterdam, less than a decade after the *Sendero*, and also was written by a Jew. This book, Gabriel de Souza Brito's *Norte Mercantil* . . . (Amsterdam, 1706), is said to be virtually a copy of a much earlier Spanish book, Solorzano's *Libro de caja* . . . (Madrid, 1590), which is in an altogether different tradition from that of the *Sendero*.⁵

⁴ De Metz explains how the compilation of the balance account serves as a check on the accuracy of the entries in the ledger and also, by way of the reversed opening balance account in the new ledger, as a means to open a new ledger. On the reversed opening balance account, see my 'Closing the Ledger, Simon Stevin, and the British Balance Sheet', *Accounting and Business Research*, Winter 1970, pp. 71–77.

⁵ It is particularly interesting to see how de Metz explains the need to include the reversed balance account in the new ledger: 'P.20. Pues hazese otro Balanço nuevo en el Libro grande principiado; R. Es fuerça, por no poder aver Devito sin Credito, ni Credito sin Devito.' (Why then do you place another new balance account in the ledger which is being begun? It is a virtue, so as not to have a debit entry without a credit entry, nor a credit entry without a debit entry.)

⁶ On the *Norte* (guide), see Jose M. Gonzales Ferrando, *Historia y Doctrinas de la Contabilidad por Joseph-H. Vlaeminck*, Madrid, 1961, p. 232.

De Souza Brito (or Britto) was a broker ('makelaar') at The Hague. He was prominent as a 'projector', that is, he put forward various proposals, some exceedingly grandiose, for the formation of companies to engage in financial activities (including assurance business) and trade, to be financed by members of the public and to receive the blessings of government (or local government) support. He does not appear to have been successful in the advocacy of his schemes. On de Souza Brito, see Zwarts, *op. cit.*, p. 171. The texts of some of his 'project' proposals are reproduced in the first volume of the anonymous *Verzameling ter waarschouwinge voor de Nakomelingen van alle de Projecten* . . . (Amsterdam, 1721). (I am indebted to Mr E. Stevelinck for drawing my attention to this book.)

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(**The Institute for Fiscal Studies** (President Sir Richard Powell, GCB KBE CMG, Director Mr Dick Taverne, QC MP) is a politically independent non-profit making body which is registered as a charity. Its principal aim is to promote a deeper understanding of the economic and social implications of existing taxes and different fiscal systems. For this purpose it will amongst other things sponsor research in the universities and elsewhere on national and international problems of both short-term and long-term significance and will arrange meetings and conferences at which experts from differing backgrounds can offer the benefit of their experience. There is provision for both corporate and individual membership of the Institute. Further information can be obtained from: The Director, The Institute of Fiscal Studies, 24 Moorgate, London EC2R 6EA.)

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T. J. Johnson, MA, is at present a Research Fellow at the Institute of Commonwealth Studies, University of London, where he is engaged on a Social Science Research Council-financed project 'The nature and significance of professional links in the Commonwealth'. Before obtaining an Honours degree in Sociology at the University of Leicester in 1963, Mr Johnson spent some time as a journalist with the *Chicago Tribune* in London. During 1963-4, he was Assistant Lecturer, Department of Sociology, University of Ghana and in 1965 joined the staff of the Department of Sociology, University of Leicester, as a lecturer. He is at present on leave of absence from Leicester. Mr Johnson's main interests are in the Sociology of Professions and African Studies. His publications include: articles with G. E. Hurd on *The Supply of Scientists in Ghana*; *Education and Economic Development*; *Education and Social Mobility in Ghana*; and with Professor W. H. Morris-Jones and M. L. Caygill, *The Commonwealth of Learning*, The Round Table, November 1970. **Marjorie Caygill, BA**, obtained a degree in Sociology at the University of Leicester in 1969 and is at present assisting Mr Johnson with his research project.

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